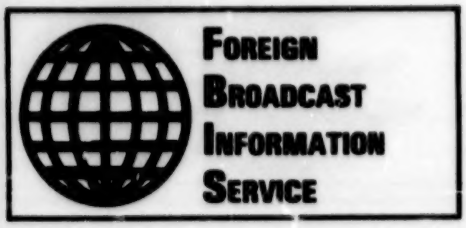
JPRS-TEN-94-002
14 January 1994



JPRS Report

Environmental Issues

Russian Draft National Action Plan for Implementing UNCED Decisions

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Russian Draft National Action Plan for Implementing UNCED Decisions

JPRS-TEN-94-002 *14 January 1994*

CONTENTS

[Draft document issued by the Russian Federation Ministry of Environmental Protection and Natural Resources: "National Plan of Action To Implement the Decisions of the UN Conference on the Environment and Development"]

Draft National Action Plan for Implementing UNCED Decisions 1
I. Conceptual Foundations 1
Section 1. Development of a System for the Management of Natural Resource Use and Environmental Protection 1
Section 2. International Cooperation 7
Section 3. Ensuring Environmental Safety in Economic Development 10
Section 4. Environmental Training and Education 14
Section 5. Priority Measures and Focuses of Environmental Restoration 16
Section 6. Basic Principles of the Mechanism for Implementation of the National Plan of Action ... 30
II. List of Measures Toward Implementation of the National Plan of Action To Implement the Decisions of the UN Conference on the Environment and Development in 1993-97 32

Draft National Action Plan for Implementing UNCED Decisions

94WN0061A Moscow ZELENYY MIR in Russian Nos 19-22, 1993 pp 11-14; 10-13; 11-14; 11-13

[Text] *In accordance with a directive from the Government of the Russian Federation, the Russian Ministry of Environmental Protection and Natural Resources has in conjunction with other affected ministries and agencies prepared and submitted for the government's consideration a draft "National Plan of Action To Implement the Decisions of the UN Conference on the Environment and Development" (Rio de Janeiro, 1992). As additional work is done on this draft, consideration will be given to the results of the Europe-wide conference entitled "The Environment for Europe," held in Switzerland in 1993.*

The draft document that we propose to discuss in the pages of ZELENYY MIR has been considered and approved by an interagency commission established in accordance with the government's directive.

I. Conceptual Foundations

The National Plan To Implement the Decisions of the UN Conference on the Environment and Development (subsequently to be referred to as "the National Plan") was developed for the purpose of providing a basis for urgent measures and basic goals with regard to ensuring environmental safety and restoring the environment.

This document is based on the Russian Federation law "On Environmental Protection," decrees issued by the Government of the Russian Federation, decisions by the UN Conference on the Environment and Development (June 1992, Rio de Janeiro, Brazil), the Lucerne Conference on a Program of Action To Protect the Environment of Central and Eastern Europe (April 1993, Switzerland) and the board of the Russian Ministry of Ecology [as published] in regard to priority areas requiring program development in the field of environmental protection, and statements contained in the Russian Federation's State Environmental Program.

The National Plan is a foundation for Russia's actions in regard to the environment and development.

It is essential to be guided by the following key principles:

—consideration for environmental and development issues in the process of political and economic decisionmaking;

—compliance with the requirements of environmental protection legislation and environmental standards;

—compliance with the terms of environmental protection when implementing reforms designed to bring about sustainable economic development;

—use of economic means to compensate for losses due to environmental pollution;

—reduction of risks to public health resulting from pollution and the harmful effect of the environment, including air pollution in cities and buildings, water pollution, the problems of pesticides, wastes, noise, and ionizing and nonionizing radiation, coupled with creation of a system for monitoring the state of the environment and assessing its quality and the state of public health;

—protection of the environment and natural resources with consideration for the maintenance of the distinctiveness, culture, and interests of native people and guarantees of their effective participation in the achievement of sustainable development;

—further development of international cooperation for the purpose of preserving, protecting, and restoring the integrity of the Earth's ecosystems;

—improvement of international legal relations pertaining to liability and compensation for the negative effects of environmental damage.

These principles will make it possible, despite a lack of funding and the state of existing economic relationships, to establish priorities among environmental problems when federal and regional program materials are compiled as components of the national plan of action.

The National Plan envisions a transition period during which gradual changes in the economic mechanism will be used to bring about adaptation to market relationships, as well as a gradual transition from strictly regulated, centrally planned management of natural resource use to a decentralized system of regional management.

Section 1. Development of a System for the Management of Natural Resource Use and Environmental Protection

In recent decades the worsening state of the environment has begun to cause a real decline in people's standard of living and to limit opportunities for the economic and social development of major industrial regions and cities. More than 80 percent of the resources produced are expended to support resource-extracting and resource-intensive processing facilities: Smelting one tonne of steel "consumes" up to 20 tonnes of primary resources (including mine overburden and enclosing deposits). More than 75 percent of all production wastes are to varying degrees toxic to the environment and human health. The wasteful and destructive nature of natural resource use is constantly giving rise to new and ever more acute environmental problems.

The worsening of the environmental situation is the result of structural deformations of the economy that have accumulated over a period of many decades and have resulted in the predominance of nature-intensive industries, outdated resource-intensive and energy-intensive technologies, a raw materials emphasis in exports, and inadequately focused efforts in recent years

to prevent the harmful effects of commercial and other activities on human beings and the environment.

The beginning of radical economic reform made the issue of a changing role for the ecological factor in society's development more urgent. There is now a serious threat of a worsening environmental situation due to:

—disruption of commercial relations, disruption of planned operating systems, and higher levels of production-related accidents;

—enterprises' financial difficulties, which limit their ability to carry out environmental protection measures;

—inadequate budget allocations to sectors responsible for the reproduction and protection of natural resources (forestry and water resource agencies, geological surveys and environmental protection agencies);

—the lack of legislative restrictions on the powers and responsibility of organs of government and administration along vertical and horizontal lines, which leads to a lack of coordination in measures taken in the field of natural resource use and environmental safety, to irresponsible actions with regard to the disposition of natural resources, and to their de facto plundering.

The environmental situation can be stabilized and improved only through a change in the orientation of the Russian Federation's socioeconomic development, a formation of new values and moral guideposts, and a reconsideration of the structure of needs, goals, priorities, and means involved in human activity. This will require a complex of radical political, legislative, socioeconomic, technological, and other measures. Furthermore, the principle of reasonable compromise must be applied when resolving conflicts that arise between the need to abide by environmental regulations and restrictions and the economic motivation of commercial activity.

Thus, it is essential that a **state policy** be developed in the field of natural resource use and environmental protection.

The most important focus of state environmental policy is the creation of a new legal and economic mechanism to regulate interaction between state organs at various levels and natural resource users, and the inclusion of environmental requirements in the procedure for assessing the socioeconomic effectiveness of the administrative decisions that are made.

The nature of these transformations is:

—improvement of environmental protection legislation, the system of environmental restrictions and regulations, and natural resource use regulations, with the goal of adapting them to the situation of price liberalization and destatization of property;

—a gradual transition to international standards for technological processes and products that will create the essential conditions for Russia's inclusion in the world economy and the international environmental safety system;

—unification of departmental systems for observation and monitoring of the state of natural resources and environmental sites that currently exist in the regions under unified methodological and organizational leadership;

—economic incentives for resource and energy conservation and introduction of equipment and technology that meet environmental requirements, by means of state tax, lending, and price policies;

—environmental assessment and evaluation of environmental impact during implementation of all programs and projects of a commercial or other nature;

—creation of topical environmental maps, regional cadastral maps of natural resources, and geoinformation systems using a unified digital topographic base;

—creation of an environmentally oriented job market and development of enterprise in that field.

These transformations should lay the groundwork for the stabilization and subsequent improvement of the environmental situation in Russia.

Under conditions of price liberalization—including prices for fuel and energy resources—state environmental safety regulatory measures are an important factor in stimulating more efficient use of energy and mineral and water resources and reducing pollution of the air and water. Consideration for the real cost of resources will force a transition away from the practice of large-scale capital investment connected with heavy industrial production toward an ongoing process of replacement of existing capital equipment and introduction of new technologies, resulting in a reduction in the average amount of pollution per product unit.

1.1. Legislation and the Mechanism of Legal Standards

Legal support for the National Plan will have as its goal the development of a scientifically based system of environmental legislation and the creation of an effective mechanism for its implementation for the purpose of protecting the environment, organizing rational natural resource use and creating an all-encompassing environmental safety system.

Existing environmental legal acts and the mechanism by which they are applied should be based on a harmonious combination of economic and environmental interests, with constant priority given to human beings' rights to a healthy environment and favorable living conditions, and to preservation of the biosphere's sustainable ecosystems.

In view of active entrepreneurial activity and the transition to a market economy, no legislative acts should be adopted that do not reflect environmental requirements.

In 1993-1994 a scientifically based system of environmental legislation should be created, and in the process it is essential that a whole series of fundamental legal acts be adopted:

1. in regard to matters under the jurisdiction of federal organs of state authority and organs of authority under the components of the Federation—the Fundamentals of Russian Federation Legislation on Environmental Protection and Regulation of Natural Resource Use; the Fundamentals of Legislation on Environmental Safety in Russia; the Fundamentals of Russian Federation Land, Forest, and Water Legislation; the Fundamentals of Legislation on Underground Resources; the Fundamentals of Legislation on Protection of the Atmosphere; the Fundamentals of Legislation on Flora; the Fundamentals of Legislation on Fauna; and the Fundamentals of Legislation on Specially Protected Natural Areas;

2. in regard to matters under the sole jurisdiction of Russian Federation federal organs of state authority—the Russian Federation laws "On Protection of Public Health and the Environment During the Production, Use, Storage, and Transportation of Pesticides, Chemical Fertilizers, and Othe Agricultural Chemicals," "On the Continental Shelf of the Russian Federation," "On the Exclusive Economic Zone of the Russian Federation," "On Lake Baykal," "On Production and Consumption Wastes," "On Public Radiation Safety," "On State Policy in the Area of Radioactive Waste Handling," "On Environmental Assessment," "On Environmental Monitoring," "On the Economic Mechanism of Natural Resource Use," "On Measures To Provide Legal and Social Protection for Employees of Specially Authorized Russian Federation Agencies in the Field of Environmental Protection."

Additionally, it is essential to introduce environmentally oriented changes and additions to existing laws such as the Russian Federation law issued on 4 June 1991 and entitled "On Foreign Investment in the Russian Federation," the Russian Federation Civil Procedural Code, the Russian Federation Code of Administrative Legal Violations, the Russian Federation Criminal Code, and the Russian Federation Civil Code.

The following should also be drawn up, in addition to the aforementioned legislative acts:

—normative acts establishing a procedure for application of civil penalties for violations of environmental legislation;

—a procedure for suspending or terminating the operations of associations, enterprises, and organizations that violate the environmental requirements of legislation (suspension of operations by individual units of equipment or assemblies, or individual types of work) and compensation for damages done to the environment;

—a procedure for appealing decisions by executive bodies in the area of environmental protection and natural resources;

—a procedure for preparation of the documents necessary to pursue criminal prosecution;

—a procedure for collecting payments for natural resource use and environmental pollution;

—a procedure for delineating the authority of environmental management organs.

1.2. Economic Regulation of Natural Resource Use

The nature and scale of improvement in the environmental situation expected as a result of the implementation of economic reform may vary significantly depending on the nature of the environment and the pollutants in question. The market economy is not a panacea. In those cases in which it does not work, an energetic environmental protection policy is needed, particularly when expenses in connection with damage done to the environment as a result of which individual people or communities suffer are not compensated for by those responsible for the damage. Some of these measures could be aimed at adjusting market stimuli (for example, by forcing polluters to pay a fine as compensation for damage caused as a result of the emission or discharge of pollutants), while others could suspend the operation of the market mechanism by imposing limits on emissions or discharges and on natural resource use.

At the present stage of economic reform (1993-95), it is essential to use to maximum effect those levers and stimuli with the aid of which it is possible to utilize untapped resources to improve the environmental situation in the country without incurring significant expenditures.

Toward that end it is essential:

—to improve the mechanism of payments for pollutant emissions and discharges, develop and introduce into practice standard payments as compensation for damages resulting from various types of adverse effects on the environment (noise-related, thermal, electromagnetic, radioactive, and so on);

—to develop an economic mechanism for accounting between the individual regions of the Russian Federation and various states for damages caused to the environment by cross-border dispersal of pollutants;

—to develop and introduce into practice a system of regional cadastral maps of natural resources, including estimates of the value thereof;

—to carry out measures to develop and support environmental enterprise and improve legislation in order to develop an environmental services market;

—to create a system of environmental restrictions and regulations governing natural resource use;

—to develop ecological economic assessments at the stages of projection, planning, pre-project, developmental, and other economic decisions;

—to provide tax breaks for that portion of enterprises' profits set aside for environmental protection measures;

—to create a state order system to implement environmental protection measures in environmental disaster areas and in areas with acute environmental situations;

—to attract foreign capital on favorable terms in order to make additional financing available for environmental protection measures;

—to create a market trading in the rights to discharge pollutants into the environment within established limits;

—to develop progressive standards for maximum permissible emissions (discharges) of pollutants for basic technologies and types of production;

—to establish a special tax rate for products manufactured using environmentally hazardous technologies;

—to create a multilevel system of environmental protection insurance funds to finance the prevention and elimination of environmental effects from major accidents and human-caused or natural disasters;

—to apply lending on favorable terms and subsidies for enterprises that effectively implement environmental program goals;

—to improve the search for new basic approaches to the economic management of environmental protection activity (the environmental price of production and environmentally based economic calculations of production efficiency);

—to expand the special-rate (lending) form of financing for environmental efforts out of local, oblast, kray, republic, and Russian Federation environmental funds.

Federal administrative bodies in conjunction with republic, kray, and oblast administrative bodies will define key regions in which to conduct experiments to develop new elements in the economic regulation of natural resource use, arrange scientific support for that work with funding from the Russian Environmental Fund, disseminate the experience gathered in these key regions, and ensure broad study and consultation by specialists from other regions of the Russian Federation.

1.3. The Public Health-Related, Demographic, and Ethnic Aspects of Natural Resource Use

Without exception, all efforts to ensure environmental safety set forth in the National Plan and all measures to develop a system of natural resource use and environmental protection administration and to encourage environmental training and education must to one degree or another guarantee the health of individuals and society.

One priority issue is the deterioration of health as a result of a poor-quality environment. A threat to human health (and to the economy) is posed by the following types of pollutants:

—lead contained in the air and in soil, with its source being zinc and lead smelters and vehicles;

—airborne dust from household furnaces, small enterprises, electric and heat generating plants, large metallurgical plants, and other plants;

—sulfur dioxide and other gases, particularly in combination with dust.

Other sources of health hazard are:

—nitrates dissolved in water as a result of inadequate planning of feed storage facilities and other agricultural facilities and settling ponds in rural areas, and from improper fertilizer use;

—pollutants in food and water, particularly in cases of the direct presence of heavy metals or toxic chemicals in drinking water reservoirs or the improper disposal of toxic nuclear wastes.

In addition, it is essential that provision also be made for the following measures:

—to establish criteria for and identify zones and sites that are sources of increased environmental hazard and that directly affect human health;

—to create a system of environmental medical monitoring by pooling the efforts and funds of agencies under the Russian State Committee for Sanitary and Epidemiological Oversight, the Russian Ministry of Health, the Russian Ministry of Environmental Protection and Natural Resources, local soviets, and other affected institutions, enterprises, and organizations. The Government of the Russian Federation will consider the possibility of additional allocations for these purposes;

—to carry out environmental hygiene mapping of all of Russia;

—to continue development of a system to track public health indicators and pinpoint factors negatively affecting the environment, taking into consideration the indirect and combined effects of various factors on public health;

—to draw up an inventory and ranking of facilities in the economy that are hazardous to human health during normal operations and in the event of accidental emissions (or discharges);

—to begin gradual introduction of a special natural resource use system within areas inhabited by or used economically by small peoples and ethnic groups in order to preserve their traditional natural resource use and cultural and economic ways of life.

1.4. State Environmental Assessment

In order to ensure the effectiveness of State Environmental Assessment and improve its effectiveness during the 1993-95 period, it is essential:

—to pass a law on environmental assessment that will define the legal status of State Environmental Assessment and provide legal support for decisions made by State Environmental Assessment;

—to adopt a statute on State Environmental Assessment on Russian territory;

—to improve the existing system of funding for environmental assessment centrally and locally; to adopt a new procedure for payment to nonstaff experts and members of the Council on State Environmental Assessment, and make provision for significant recruitment of highly qualified specialists to work in the system of environmental assessment agencies;

—to adopt a statute on payment of nonstaff experts and members of the Expert Council;

—to clearly delineate the functions of subunits within the State Environmental Assessment of the Russian Ministry of Natural Resources and Environmental Protection, and in other agencies;

—to develop an automated system of state environmental assessment;

—to develop a system of geo-information support for the State Environmental Assessment system;

—to develop a system of experts to define environmental disaster areas on the basis of regional categorization;

—to develop guidelines for the conducting of medical environmental assessments;

—to develop methodologies for tracking the state of the geological environment when environmental assessments are conducted;

—to develop methodologies for monitoring the biological indices of industrial pollution;

—to develop methodological recommendations to determine the degree of economic risk involved in various types of commercial activity;

—to develop criteria by which to assess the ecological condition of the environment in regions with a high level of technogenic burden;

—to develop a draft normative and organizational basis for interaction between the systems of Federal Geo-Ecological Monitoring and state environmental assessment;

—to develop a draft and a working model of a system of geo-information support for the procedure of state environmental assessment;

—in order to improve the training of employees of the Russian State Environmental Assessment system, to make provision for their focused training according to a special program and a single methodology;

—to develop a methodological basis and a working model of an automated State Environmental Assessment work station;

—to make provision for the establishment of temporary research teams on a cost-accounting basis, to develop normative and methodological documents regulating the operations of bodies of experts, requirements of planning documents, with consideration for scientific and technical advances, and promising objectives in the socioeconomic development of the republic and individual regions of Russia;

—to reinforce the physical and technical infrastructure and create a testing laboratory (both stationary and mobile) in which to conduct control analyses as part of the assessment process and a data bank on nonstaff experts, scientific collectives, environmentally clean technologies, equipment, and so on.

1.5. The Federal System of Environmental Monitoring and Information Support for It

At the present time a large portion of the information regarding the state of the environment and sources of adverse effects is scattered among agencies, has varying degrees of accuracy and quality, was collected and compiled for various purposes, and often either does not cover an issue in its entirety or is not reliable.

In the 1993-94 period, the main focuses of improvement in state environmental monitoring are:

—development and approval of a "Statute on Monitoring of Environmental Protection and Natural Resource Use";

—development and practical application of a unified system of standardization and methodological support for the operations of state monitoring agencies in the fields of ecology and natural resource use;

—development of a draft program for a unified state system to monitor the state of the environment using state and departmental systems, as well as efforts to guarantee their methodological, metrical, informational, and organizational compatibility;

—creation of the first stage of a system for quick determination and analysis of causes and projection of the effects of emergency situations in connection with accidental environmental pollution; creation of systems for emergency warnings concerning discharges into the environment and automated monitoring of emissions at enterprises with an elevated risk of creating pollution by toxic chemical and radioactive substances;

—implementation of comprehensive development of issues pertaining to the creation of an observation network at sites where hazardous chemical and radioactive substances are buried, and an inventory and comprehensive study of the environment at places where they are stored or buried;

—creation of a network of stationary and mobile equipment to monitor pollution sources, including through the use of long-range and quick-measurement methods;

—creation and support for the effective operations of a system of state monitoring of the protection and efficient use of natural resources based on interaction between all monitoring and inspection services in that field;

—creation of a system to monitor the radiological situation in areas subjected to radioactive contamination as a result of the accident at the Chernobyl nuclear power station, as well as in areas where nuclear industry and nuclear test sites are located;

—implementation of technical refitting of the network for observation and monitoring; development and organization of serial production of measuring devices and auxiliary equipment and materials;

—oversight of development of the manufacture of modern monitoring and measurement equipment and provision of that equipment to the appropriate services of environmental protection agencies;

—oversight of the development, review, and establishment of pollution standards and issuance of licenses permitting pollutant emissions and discharges or natural resource use;

—development of a procedure for suspending or terminating production activities by enterprises (or other production facilities) for environmental reasons;

—performance of an analysis of existing standards governing the quality of natural sites, for the purpose of assessing their ecological and physical-chemical justification and developing a republic system of standards as the first stage in a transition to the establishment of environmental standards.

By 1995, there are plans to set up a State Information System (GIS) to gather, store, systemize, and process Russia's environmental information, for the purpose of achieving the following goals:

—creation and maintenance of a data base on the state of the environment; innovative environment-protecting and resource-conserving technological, technical, organizational, and economic solutions;

—creation of regularly updated environmental maps of Russia and individual regions;

—maintenance of cadastral maps of natural resources;

—projection of ecological situations within the country's territory;

—tracking of environmental ratings issued to enterprises and regions;

—development and improvement of the system for exchange of scientific and technical information about environmental protection with appropriate international, republic, and industry information agencies;

—provision of up-to-date, complete, and reliable information on the state of the environment to organs of state administration, scientific and public organizations, and the public;

—creation of a system to monitor the quality of data at all stages of their receipt, processing, compilation, and publication, and provision of that system with all necessary means and materials.

Geographical information and cartographic support should be organized on two levels: regional (republic, kray, oblast, and so on) and federal. The territorial correlation of this information (through aerial photographs or cartographical data, statistical reports, and so on) at each of these two levels will be provided with the help of the appropriate regional information elements. This sort of spatial correlation of information for the GIS will make it possible to begin establishing the GIS at the federal and regional levels simultaneously.

At the regional level, efforts to organize information support will require above all the creation of GIS's in the key regions (republics, krays, and oblasts). In the early stages, these will be oriented toward use in the study of specific areas and influence on them by commercial operations, and later (as information accumulates in the GIS) toward development of a mechanism to manage natural resource use in the region and a mechanism for interaction between GIS's at the regional and federal levels.

It is essential to create a central automated information and measurement system to monitor the environment and industrial emissions in one of Russia's industrially developed regions with an acute environmental situation, with subsequent use of experience with setting up that central automated system to develop an automated monitoring network for all of Russia.

The key goals that will be sequentially achieved in the process of establishing the GIS in 1993-94 will be:

a) at the regional level:

—development of a conceptual model of the natural and economic complex in a base region;

—selection and adaptation of GIS software;

—determination of the basic and supplementary arrays of information modules for the GIS;

—development of a system of regional information elements (TEI) in the base region;

—development of a structure for the data base and selection of instruments for its implementation;

—determination of the content of overview and overview-thematic maps;

—development of data base structures for the basic array of information modules;

—creation of a digital map and a section thereof for the base region;

—assembly of a data base on the natural resources of the base region;

—compilation of a list of application programs in support of the administrative mechanism;

—development of programs to assess the effectiveness of environmental protection efforts;

—development of a general plan for natural resource use in the base region, specifically through creation of digital maps regulating natural resource use.

b) at the federal level:

—development of a conceptual model of Russia's natural and economic complex;

—selection and adaptation of GIS programming compatible with the regional-level GIS;

—creation of a system of federal regional information elements based on pooling of regional information element (TEI) systems at the regional level;

—determination of the composition of information modules within the federal GIS;

—determination of the composition of overview and overview-thematic maps;

—development of the logical structures of data bases for the basic array of information modules;

—creation of a digital map, the basis of the federal GIS;

—creation of a communications channel and development of information interaction between the federal GIS and the GIS in the base region (at the level of digital base maps).

Section 2. International Cooperation

The Russian Federation cooperates with more than 20 countries as the legal successor to the former USSR with regard to its bilateral intergovernmental agreements in the area of environmental protection. Within the framework of those agreements, much attention is focused on border issues (for example, through agreements with Norway, Finland, and Sweden). Within the framework of interaction among the CIS member states, these issues will be resolved both on the basis of a multilateral agreement of 8 February 1992 and in accordance with bilateral agreements at the governmental level.

Implementation of the Agreement on Interaction in the Area of Ecology and Environmental Protection of 8 February 1993 will require coordinated actions by the member states and appropriate reflection in the National Plan of those obligations on the part of the Russian Federation that stem from the Agreement, as follows:

—harmonization of any environmental protection-related legislative acts, environmental norms, and standards adopted;

—joint development and implementation of interstate programs and projects in the area of natural resource use, including programs for the safe destruction and neutralization of chemical and nuclear weapons and highly toxic and radioactive wastes;

—application of common approaches, criteria, methods, and procedures to assess the quality and monitor the condition of the environment and anthropogenic effects thereupon, and assurance of the compatibility of data on the state of the environment at the interstate and international levels;

—use of coordinated methodologies to assess the effects of economic and other activities on the environment;

—unification of methods by which to set standards for anthropogenic effects on the environment;

—application of coordinated methods to monitor genetic changes in communities of living organisms and to protect rare and endangered species, as well as their habitats;

—creation and support of an interstate ecological information system;

—development and implementation of a coordinated scientific and technical policy in the area of ecology and environmental protection; conducting of coordinated basic and applied environmental research;

—development and application of general principles designed to stimulate environmental protection efforts and sanctions against violators of environmental protection legislation;

—adherence to general methodological requirements when conducting environmental assessments of programs and projections for the development of production capacity and of investment projects and other projects;

—maintenance of an interstate Red Book.

In order to implement the National Plan, including through attraction of essential foreign experience and assistance, it is proposed that adjustments and additions be made to bilateral cooperation programs. These would focus on fuller utilization of the agreements in question.

In this regard, an important role will be played by the effective use of technical and financial assistance from international organizations and foreign investment. In view of the acuteness of environmental problems in Russia, an overwhelming majority of investment projects should have a clearly expressed environmental orientation, help improve the state of the environment, and be required to undergo an environmental assessment procedure approved by international organizations.

The obligations of the Russian Federation with regard to multilateral conventions and agreements as reflected in the National Plan will require close integration with other countries, in particular the European countries.

Implementation of the UN Conference on the Environment and Development (1992) in the European region will require coordinated actions by countries in such areas as:

—change in the structure of production and consumption;

—comprehensive consideration for the aspects of the environment and development in the course of decisionmaking;

—protection of the atmosphere;

—assurance of a high quality of fresh water resources;

—environmentally safe use of toxic chemicals and waste processing and disposal;

—exchange of environmentally acceptable technologies;

—assistance with sustainable development of agriculture and rural areas;

—protection of forests;

—protection of seas and coastal areas.

These problems will be decided with Russia's participation through the mechanisms of regional and global conventions and international organizations.

A special role in this connection is played by the process of general European conferences of environmental ministers. The results of the second conference, held in April 1993 and essentially a concretization of the Rio de Janeiro forum's decisions for Europe, bore out the well-founded nature of that approach, and the Conference's main documents—the "Program of Action for the Countries of Central and Eastern Europe" and the "Declaration of the Ministers"—laid the groundwork for resolving the most pressing environmental problems of countries with transition economies through the use of foreign partners on a multilateral and bilateral basis.

Russia proposed that the European program give consideration to specific sites and areas in Russia, ecological restoration of which will require foreign assistance.

The cooperation that is currently developing with international financial organizations (the World Bank, the European Bank for Reconstruction and Development, and so on) on environmental protection and natural resource use in Russia will be focused primarily on implementation of the most important and capital-intensive elements of the national plan of action. Also focused on this will be bilateral programs of technical assistance to Russia. There are also proposals to combine efforts aimed at improving the legislative and regulatory basis of environmental protection efforts, creating an adequate infrastructure, systems for monitoring the state of the environment, and an information system for the purpose of decisionmaking, with specific measures at the regional level.

In large part, those measures will be aimed at improving the environmental situation in regions most harmful to human health, reinforcing the physical base and infrastructure of specially protected natural areas, and ensuring more efficient use of natural resources, in particular oil and gas.

A draft program for interaction with the World Bank envisions, in part, a stronger technical base for environmental protection agencies in Russia; implementation of measures to optimize the environmental protection system; creation of an appropriate regulatory and infrastructure base for that purpose; conducting of research projects; and implementation of measures in specific cities and at specific sites to solve the problems of industrial and household wastes, water quality (particularly drinking water), to reduce the level of pollutant emissions (including greenhouse gases) and to stop the production and use of substances that destroy the ozone layer; use of by-product gases (in the process of oil production and refining); to develop and appropriately equip a network of specially protected natural areas, and so on.

Detailed development and implementation of environmental cooperation programs will be carried out by a specially established center jointly directed by the World Bank and a council comprising the heads of the Russian Federation Ministry of Environmental Protection and Natural Resources, the Russian Federation Ministry of Fuel and Energy, the Russian Agency for International Cooperation and Development, and other ministries and agencies that will be participating in the projects.

In connection with Russia's signing of the framework Convention on Climate Change and the Biodiversity Convention and the need for their ratification or adoption, it will be necessary to take the following steps at the first stage.

2.1. The Convention on Climate Change:

—preparation of national cadastral maps of anthropogenic emissions from sources and absorption by absorbents of all greenhouse gases not regulated by the Montreal Protocol regarding substances that destroy the ozone layer. When such work is done the compatible methodologies approved by the parties to the Convention (in Article 4. 1a and 12a) must be used;

—development of a national program of measures to lessen the effects of climate change through a comprehensive approach to the problems of anthropogenic emissions from sources and absorption of greenhouse gases by absorbents, as well as measures to promote adequate adaptation by sectors of the economy and the social realm to climate change (Article 4.15);

—development of comprehensive plans in regard to commercial activity in coastal zones, water resources, agriculture, and the protection and restoration of regions affected by droughts, desertification, and floods (Article 4. 1e);

—participation in the timely exchange of appropriate scientific, technological, technical, social, economic, and legal information in connection with climate and changes therein, as well as the economic and social effects of various reaction strategies (Article 4. 1h);

—development of a national program of education, training, and public information on matters pertaining to climate change (Article 4. 1i and 12);

—preparation of a national report on the implementation of Russia's obligations under the Convention (Article 4. 1j).

In connection with this, it is essential to carry out the following scientific research:

1. Development of a model cadastral map of greenhouse gas emissions (scheduled completion: 1993-94).

2. Development of a model cadastral map of greenhouse gas absorbents (scheduled completion: 1993-94).

3. Research on the possibility of applying the methodology for assessment of greenhouse gas concentrations proposed by the International Group of Climate Change Experts to the territory of the Russian Federation (scheduled completion: 1993-94).

4. Development of a draft national plan of research on climate change and its effects (scheduled completion: 1993-94).

5. Development of a draft program for rapid exchange of information pertaining to climate change (scheduled completion: 1993-94).

6. Development of a draft national program to inform the public and train personnel in the field of climate change (scheduled completion: 1993-94).

7. Preparation of a draft national report on compliance with the Russian Federation's obligations under the Convention (scheduled completion: 1993-95).

2.2. The Biological Diversity Convention:

—development of a national strategy, plan, or program for the preservation and sustainable use of biological diversity;

—definition of the components of biological diversity that are of significance for the preservation and sustainable use thereof, and creation of a monitoring system;

—creation of a system of protected regions and regions in which it is essential to take special measures to preserve biological diversity;

—development and approval of essential legislative standards for the preservation of threatened species and populations;

—development and implementation of a program of scientific and technical study and personnel training for the purpose of implementing measures to define, preserve, and make sustainable use of biological diversity and the components thereof;

—development and introduction of appropriate procedures for the conducting of environmental assessment of proposed projects that could have a significant negative impact on biological diversity;

—development of national legislation regulating access to genetic resources and technologies and the transfer thereof.

The universal nature of the National Plan presumes the broad use for its implementation of all available mechanisms of interaction with other countries, including within the framework of international organizations, in particular the UN Environmental Program (UNEP), the European Economic Commission of the UN, the World Meteorological Organization, the World Health Organization (WHO), UNESCO, the UN Industrial Development Organization (UNIDO) and the UN Food and Agriculture Organization (FAO), as well as multilateral and bilateral international conventions and agreements. Of exceptionally great importance in this connection will be interaction with international financial organizations, through which technical, organizational, and financial assistance with the implementation of key elements in the Program will be provided. Also focused on these same goals will be efforts to ensure efficient use of foreign bilateral assistance (in addition to traditional

bilateral cooperation in the field of environmental protection within the framework of appropriate agreements).

In addition, projects under programs of the national plan will also be partially financed with funding from a special foreign currency fund that is slated to be established by the Russian Federation Ministry of Environmental Protection and Natural Resources. It is planned that money will be paid into this fund by the World Bank, the European Bank for Reconstruction and Development, the European Investment Bank, and investors on the basis of various bilateral contracts. This fund, which will not be legally connected with the existing Federal Environmental Fund, will complement that fund. The executive mechanisms of the two funds should be combined.

Section 3. Ensuring Environmental Safety in Economic Development

Questions of environmental safety and the measures implemented to achieve it should be considered an aspect of establishing permissible anthropogenic burdens on the environment and in particular on individual ecosystems, exceeding which could result or has already resulted in such irreversible changes in natural conditions that existing forms of adaptation by human beings, animals, plants, and microorganisms to the environment are not capable of ensuring their normal development and existence, and also as an aspect of preventive measures of protection against natural and manmade disasters.

The following are among the priority areas for investment:

—direct capital investment aimed at protecting health. In regions with heavily polluted air, investment priority should be given to measures undertaken for the purpose of improving systems to control the dust level in air adjacent to enterprises in the nonferrous metals industry and steel smelting facilities as well as measures to replace coal with gas as a source of energy at rayon heat and electric power stations and in homes. As for protection of water resources, there priority should be given to the initial treatment of industrial waste water containing a high level of heavy metals and toxic chemicals, which present a serious threat to groundwater and surface water, as well as to reduction in the excessive nitrate levels in drinking water sources located in rural areas;

—capital investment earmarked for construction of areas for the processing, utilization, and environmentally safe storage (or disposal) of wastes and for production of environmentally safe chemical fertilizers and other agricultural chemicals;

—capital investment designed to prevent and eliminate processes of land degradation and soil disruption and destruction, and to restore polluted land;

—measures that provide for treatment of waste water in order to protect the ecology of coastal and tourist regions; completion of water treatment facility construction, particularly in areas where this could significantly improve water quality; implementation of programs that could prevent irreversible damage that might otherwise be done to the environment and to highly important ecosystems;

—support for expansion and acceleration of capital investment carried out by industrial enterprises in accordance with implementation of the new economic policy, including measures such as reduction in the amount of salinated water discharged by mines, treatment of waste water from cellulose combines, textile mills, and chemical plants, and measures undertaken to reduce discharges of toxic substances by enterprises in the chemical and petrochemical industries;

—measures not requiring large expenditures and designed to implement long-range environmental programs, especially in cases in which a program can be implemented quickly and with great savings. These include an end to the use of gasoline containing high lead levels, reduction in the amount of exhaust gases produced by automobile engines, financing of applied research in the field of ecosystem protection, and development of a system to collect, process, and distribute data and information pertaining to the environment.

Often there is much that can be achieved simply through "good housekeeping," that is, through careful repairs, efforts to prevent leaks, installation of more advanced monitoring equipment, and a reorientation toward stricter standards in the management of production and technologies. All these are economically advantageous "no-lose" measures, which will improve the economic results of enterprises' operations and decrease the amount of environmental damage they do. These sorts of small-scale actions will lay the groundwork for improvement in the state of the environment in connection with transformation of economic policy. These measures are very important, because large-scale introduction of antipollution technologies in various industries cannot be carried out until new markets are created for various types of products and the economic viability of specific enterprises is assured.

One important stage in defining scientifically based priorities in natural resource use and ways of implementing them is development of a comprehensive state scientific and technical program to be entitled "Environmental Safety in Russia."

The top priority in efforts to achieve environmental safety is adoption of urgent measures to lower the level of effects on the environment and on human beings by "hot spots" in Russia to a safe level by the year 2005.

Toward that end, it is essential:

—to develop criteria by which to assess the degree of environmental danger in such areas;

—to conduct exploration and mapping of those areas with the aid of the criteria thus developed;

—to develop and implement a plan of measures to gradually reduce environmental danger in such areas;

—to create a system to monitor the condition of the aforementioned areas and the health of the people living in them;

—to develop and introduce a system to warn employees of enterprises and the public in the event of particularly dangerous occurrences.

The next focus of efforts to ensure environmental security is elimination of accidents, manmade disasters, emergency meteorological situations, natural disasters, and the effects thereof. This will require:

—ranking of production facilities, technologies, and types of operations in order to reduce technological and environmental danger on the basis of risk theory;

—development and introduction of automated systems to monitor the most dangerous types of operations, production facilities, and installations.

3.1. Prevention and Elimination of the Effects of Accidents, Disasters, and Other Emergency Situations

In order to lessen the likelihood of environmentally hazardous situations occurring, to reduce the scale of their effects, and to ensure human safety, it is essential that the following measures be implemented.

Criteria must be established in zones and at sites with an elevated level of environmental hazard identified in 1993-94. Facilities in the economy that are hazardous to the environment and human beings in the course of normal operations and in the event of accidental emissions (or discharges) of radioactive or chemical substances used, manufactured, or stored at those facilities must be inventoried and ranked. On the basis of this inventory, the following must be developed and implemented for enterprises and organizations, with consideration for input from local soviets of people's deputies:

—a system of measures to maximally reduce the risk of environmentally hazardous situations emerging during the construction and use of chemical and petrochemical facilities and nuclear power facilities, on the continental shelf during the production of oil and gas, at mine tailing storage sites, at high dams, and at anti-mudslide and avalanche-protection installations, particularly in seismically active regions where fuel, radioactive substances, and toxic substances are stored;

—programs to bring about the technical refitting, redesignation, or removal of worn-out and environmentally hazardous production facilities and enterprises, as well as planned resettlement of persons living within the boundaries of sanitary protection zones and zones surrounding enterprises in the chemical, petrochemical, microbiological, gas production and refining, metallurgical, coke, and chemical fertilizer industries and other environmentally hazardous enterprises and production facilities.

Means of early detection and emergency shutdown of equipment and shutdown of technological processes, as well as automated means of assessing the reliability of and danger of fire or explosion created by equipment, should be developed and put in place at commercial facilities.

Model regional plans for recovery from the effects of probable environmentally hazardous situations must be developed.

A national center for immediate environmental assistance should be established, and there should be participation in the establishment of similar international systems.

Additions must be made to building standards and regulations which regulate the siting of potentially hazardous facilities in Russia, as well as those that establish the requirement to include emergency planning and environmental assessment in planning documentation.

3.2. Ensuring Radiation Safety

In order to ensure the safety of the public and the environment from radiation, it is essential:

—to improve the existing system of radiation monitoring within Russian territory through establishment of Unified State Automated Radiation Level Monitoring;

—to implement comprehensive monitoring of the radiation levels within Russian territory;

—to develop and introduce standards in regard to protection of the public and the environment from radiation;

—to develop and implement programs to normalize the radiation situation and to rehabilitate radiation-contaminated areas of Russia;

—to present annual reports to the Government of the Russian Federation regarding the state of and additional measures to ensure the public's radiation safety;

—to ensure close cooperation between Russia's ministries and agencies in regard to the introduction of unified requirements governing public radiation safety;

—to conduct an analysis and assessment of scenarios for possible accidents at all existing enterprises and facilities in the nuclear power cycle within Russian territory;

—to develop a system of measures to warn and inform the public in the event of emergency radiation situations (accidents and disasters);

—to develop and introduce a series of scientific and technical measures to reduce the effects of radon and similar substances on public health;

—to carry out a detailed survey of all cities with a population greater than 100,000 by 1995 and of all cities with a population greater than 50,000 by 2000 for the purpose of locating unidentified sources of ionizing radiation, with subsequent cleanup of those sources, as well as gamma-spectroscope surveys of areas where nuclear detonations have occurred;

—to conduct a study of areas where nuclear substances have been disposed of within the republic's territory, particularly at industrial enterprises in the nuclear power cycle and in bodies of water;

—to objectively inform the public regarding the state of the environmental radiation level in the Russian Federation;

—to arrange training and advanced training for specialists in the fields of radiation safety and environmental radiation safety.

3.3. Prevention of Environmental Pollution by Production and Consumption Wastes

In order to prevent pollution of the environment by dangerous wastes resulting from production and consumption, it is essential that the following goals be achieved:

—development in 1993 of a state Waste Program, to include research and development work to create new technologies and equipment for the processing of wastes and the production of such equipment;

—accelerated drafting of a law "On Production and Consumption Wastes";

—an inventory of all ministry-operated areas within Russian territory where wastes are stored (sludge and mine tailings storage, settling ponds, accumulators, spoils, and so on), as well as unauthorized dumps for the disposal of production-related and solid household waste;

—on the basis of the data from the inventory and ranking of the industrial wastes created by enterprises, creation of a republic data bank on those wastes and technologies by which to process them;

—creation of a stock-based exchange to engage in free trading in information and scientific and technical advances in the fields of production-related and consumption-related waste collection, transportation, utilization, and disposal;

—incentives for destatization of enterprises that collect and process waste;

—establishment of small businesses and joint ventures to recover usable materials and manufacture products out of them;

—implementation of accelerated development of capacities to collect and utilize various types of secondary resources, plus introduction of progressive technologies for their processing;

—development and introduction of technologies to neutralize and process toxic industrial wastes;

—development of a plan for the siting of toxic industrial waste and solid household waste storage facilities in Russia based on regional planning documents and projects;

—construction of specialized facilities for the neutralization and environmentally safe disposal (or storage) of toxic industrial wastes for which there are currently no environmentally or economically acceptable means of processing;

—guarantees of environmental safety in the operations of facilities that destroy chemical weapons, including the storage of such weapons at their point of origin, transportation to destruction sites, destruction (or neutralization) of the weapons, destruction (or utilization) of the products of neutralization, and disposal of nontoxic waste;

—monitoring of the collection, processing, and transportation of used daylight lamps that contain mercury and other heavy metals;

—introduction of enterprises (or installations) to neutralize pesticides that have been banned or are not suitable for use;

—introduction of a method of combined processing of solid household waste with preliminary separation of valuable components, composting of organic wastes, and utilization of the noncomposted residue for pyrolysis;

—development of an industrial-scale technology to obtain biogases at storage sites (or dumps) and make comprehensive use of such gases, with a primary goal of creating appropriate facilities for cities with a population of more than 100,000;

—development of garbage processing plants with a capacity of 23-25 percent of all solid household waste by the year 2005.

3.4. Conversion and Ecology

A solution to the problem of environmental safety and achievement of goals that will improve the environmental situation in the Russian Federation will be more

difficult without the use of the defense complex's production capacity and scientific and engineering potential. Therefore, a number of state programs for conversion of the defense complex include a separate Conversion and Ecology program.

Those programs' goals are:

—to improve the environmental situation in regions with a critical anthropogenic burden;

—to bring about restructuring of the various sectors of the military-industrial complex in order to solve environmental problems;

—to steadily expand civilian production capacity of environmentally oriented products;

—to create an economic mechanism for achieving the environmental goals of conversion;

—attraction of funding for environmentally oriented conversion measures;

—inclusion of the environmental conversion agenda in the structure of radical economic reform in the Russian Federation.

In order to accomplish these tasks, the Conversion and Ecology program makes provision for:

—establishment and accelerated development of a market in environmental jobs and services;

—inclusion of a mechanism of state economic regulation and incentives for conversion-related environmental measures;

—legal and economic standards in support of the mechanism by which the environmental aspect of conversion functions;

—structural and informational support for the program and coordination of efforts.

The first stage in the Conversion and Ecology program, scheduled for 1993, will create a scientific and technical foundation upon which to develop and prepare for serial production, beginning in 1994, new types of environmental protection equipment, technologies, materials, and monitoring devices, as well as to establish production relations and cooperation on the manufacture of environmentally oriented products in place of ties disrupted or neglected following the disintegration of the USSR.

The program includes goals in the following main areas:

—development and creation (introduction) of new technologies and equipment to treat gaseous emissions and waste water and to process, neutralize, and recycle solid waste (Area 1);

—development and creation (introduction) of measuring and information systems to provide background monitoring of the state of the environment and monitor pollution sources (Area 2);

—development (introduction) of methods and means of restoring natural areas disrupted by economic and military activities (Area 3);

—development and creation (introduction) of new, environmentally clean resource- and energy-conserving technologies and types of manufacture (Area 4);

—establishment of a physical and technical base for a maritime environmental monitoring system to monitor Russia's economic zone and territorial waters (Area 5);

—establishment of a legal and economic mechanism to regulate and stimulate federal systems of environmentally safe and sustainable development in the process of defense industry conversion (Area 6);

—restructuring of the economic complex in regions with a critical environmental situation as part of the process of defense industry conversion in the Russian Federation (Area 7).

3.5. Environmental Support for the Armed Forces

The goal of environmental support for the Russian Armed Forces is to achieve environmental safety in the operations of the Russian Federation Armed Forces and to protect personnel, weapons, and military equipment under conditions of environmentally adverse anthropogenic and natural factors.

The principal focuses and goals of the Russian Armed Forces in the area of environmental protection are:

—environmental support for the day-to-day operations of troops and naval forces;

—environmental support for the operations of the Russian Armed Forces in conditions in which they are affected by environmentally adverse anthropogenic and natural factors;

—environmental monitoring of the Russian Armed Forces within the system of state environmental monitoring;

—restoration of the environment in the process of the Armed Forces' day-to-day operations following maneuvers, special work, accidents, and disasters at military facilities;

—military-scientific support for the principal areas of Russian Armed Forces environmental safety;

—participation in environmental support in all the stages of the life cycle of weapons and military equipment and the planning, construction, and use of Russian Armed Forces facilities, in conversion of defense

manufacturing facilities, and in all the stages of utilization and destruction of nuclear, chemical, and conventional weapons and military equipment;

—interaction with state and ministerial environmental protection organs and international cooperation on environmental support for military operations;

—training of military ecologists.

Priority tasks with regard to Russian Armed Forces environmental support are:

—participation in the utilization of nuclear power facilities and nuclear warheads and in the storage and utilization of radioactive waste;

—participation in the removal of metal fragments and rocket fuel from areas where pieces of booster rockets land;

—utilization of outdated or damaged military equipment and weapons, including nuclear submarines, long-range missiles, and chemical weapons;

—qualitative improvement in the condition of bases and depots for fuel, lubricants, and rocket fuel components (reservoirs, pumping stations, and fuel pipelines);

—assessment of the environmental damage caused by troops in their countries of deployment;

—construction of new and reconstruction or expansion of existing treatment facilities;

—conducting of environmental ranking of military facilities and establishment of an environmental monitoring system;

—implementation of comprehensive and ongoing environmental training and education for military personnel, Army and Navy employees, and members of their families;

—establishment and proper outfitting of environmental units, which will be assigned to restore disrupted environments.

3.6. Environmental Aspects of the Development of the Fuel and Energy Complex

The priority of environmental efforts in the strategy to develop the fuel and energy complex results from that complex's very intensive negative effects on the environment. For example, enterprises in the fuel and energy complex account for 50 percent of all emissions into the atmosphere, up to 35 percent of all waste water discharges into natural bodies of water, and approximately 30 percent of all solid waste, which occupies significant areas of productive land and constitutes a source of secondary pollution.

The main principle guiding the assurance of environmental safety in the fuel and energy complex is a comprehensive approach to efficient use and conservation of fuel and energy resources at all stages of their production and processing on the basis of progressive and environmentally clean technologies, including the functioning of unified energy technology installations.

A significant role in reduction of environmental pollution can be played by optimization of the fuel and energy balance as it relates to the structure and siting of other production facilities that release harmful substances, as well as by an increase in the percentage of centralized heat supply to industrial and nonindustrial facilities.

There are plans for a transition from traditional methods of fuel combustion to the use of new furnaces, and to the development and introduction of steam-gas and gas-turbine installations employing intracycle coal gasification.

It is essential that incentives be provided for the development and introduction into use of nontraditional, environmentally clean methods of producing energy (using solar, thermal, wind, and biomass power), as well as low-potential energy sources.

There will be marked progress toward improvement of the system for the collection, transportation, and refining of by-product gaseous products, as well in the detection, location, and elimination of oil leaks and spills in production and refining regions, particularly under the environmentally sensitive conditions that exist in the North.

In view of the objective orientation toward primary use of coal to produce energy, environmentally clean technologies for coal mining, transportation, upgrading, and processing are becoming more widely used, with mandatory utilization of waste products, recultivation of disrupted land, and ecosystem restoration.

Research and development work will continue on the development and manufacture of high-efficiency methods and equipment to purify exhaust gases and utilize the products thus trapped, particularly sulfur compounds, nitrogen oxides, and hydrocarbons, as well as on equipment to treat waste water, including recirculating systems and systems to process and utilize sludge.

Section 4. Environmental Training and Education

The principal goals of environmental training and education are to develop an environmental culture in individuals and throughout society and environmental awareness and thinking and a responsible attitude toward nature on the part of each person, and to foster practical experience with natural resource use and competent decisionmaking.

The main principles of environmental training and education are:

—universality and continuity;

—vertical and horizontal integration of formal and informal training and educational structures;

—flexibility, variability, a problem-oriented approach, and continuity in study and training;

—unity of general, vocational, and ecological training and education;

—consideration for practical needs;

—consideration for ethnic interests and for cultural and regional characteristics;

—humanization and an orientation toward development of a socially active individual and environmental awareness, thinking, and culture.

On the basis of these fundamental goals and principles of environmental training and education, and on the basis of the Russian Federation law "On Environmental Protection," the overall goal of the strategy for development of environmental training and education is to create a system of universal comprehensive and continuing environmental training and education that will encompass the entire process of preschool and school training and education, vocational training for specialists at secondary and higher educational institutions, and advanced training for such specialists with the aid of the mass media.

The structure of this system of universal comprehensive and continuing environmental training and education (subsequently to be referred to as the system of continuing environmental training and education [SNEVO]) may be represented by the following basic and interconnected branches:

—preschool environmental training in the family and in specialized training institutions, both state and private;

—environmental education for workers (training of workers at vocational and technical schools and on the job);

—environmental education for middle-level specialists (training at technical secondary schools, at higher vocational schools, and at pedagogical schools);

—environmental education at higher schools: special environmental education, introduction of environmental training for specialists in all fields and areas of specialization, and environmental training for academic and scientific personnel;

—environmental education for specialists and administrators with higher and secondary specialized education (special courses, advanced training courses, advanced training institutes, and academic centers);

—on-the-job environmental education for blue-collar workers, office workers, engineering and technical personnel, and administrative personnel at enterprises and in the social realm;

—informal environmental training and education, and self-education for children and adults.

The principal measures by which to implement this strategy are:

a) Creation a state/private system to administer SNEVO. This will require:

—identification of existing state and private organizations that have experience with cooperation in the field of environmental training and education, development of functional and structural diagrams, and establishment of state/private administration for SNEVO on a basis of legal standards;

—creation of interdepartmental coordinating and methodological councils at all levels and a higher state certification commission to issue certificates and licenses in the field of environmental training and education;

—establishment of a Russian (International) Center for Environmental Training and Education and a network of regional centers (an environmental education space).

b) Establishment of a foundation of legal standards. This will require:

—development of sublegal acts, normative acts, standards, and the other normative legal documents that are essential for the establishment, functioning, and development of SNEVO.

c) Preparation of the scientific and methodological base. This will require:

—analysis and selection on the basis of quality of scientific plans for methodological complexes (qualifications descriptions, standards, curricula and programs, methodological guidelines, computer programs, and so on), textbooks, and mass media materials;

—development and publication of textbooks and start-up of audiovisual program production;

—development and creation of programs for mass media communications.

d) Development of a system of personnel support for all levels and types of environmental training and education. This will require:

—development of qualifications descriptions, standards, content, and methodologies for the training of SNEVO instructional personnel at universities, higher pedagogical institutions, schools, and colleges;

—organization of training for personnel studying SNEVO planning and administration.

e) Creation of a state/private system to provide the reliable and timely environmental information essential

to and adequate for high-quality environmental training and education of the entire population. This will require:

—establishment of the informational data bases essential to the functioning of SNEVO;

—organization of universal community environmental training and children's programs utilizing various means of communications;

—creation of a system to provide environmentally significant information to state and private SNEVO organizations and the public;

—establishment of a universal interregional information and reference system linked with the international information network.

f) Orientation of the content of environmental training and education toward individual development and solutions to the problems of society's sustainable socioeconomic development and environmental safety. This will require:

—provision of reliable information in the field of environmental protection and efficient natural resource use, socioeconomic development, and environmental and socio-environmental situations at the regional, republic, national, and world levels to educators, teachers, and instructors;

—provision of information regarding the fundamental principles of normative legal documents in the field of environmental protection and efficient natural resource use to all participants in SNEVO;

—analysis of the content of environmental training and education from the standpoint of the need for its updating or creation, or for developments that will take into consideration the requirements for its reorientation, with participation by scientists and experts in the appropriate fields of knowledge and activity;

—retraining of educators for the system of formal and informal education in a field of new or updated content, and introduction of that field into curricula, programs, and the educational process.

International cooperation in the field of environmental training and education is an important means of implementing SNEVO.

The primary goal of this is to utilize international experience and include Russia in the world process of ecological training and education. From the standpoint of achieving the goal of international cooperation, the following measures have priority:

—creation of a national service for the collection, processing, and dissemination of environmental information, and its inclusion in the international system;

—realization of joint research and projects to design technologies and means of studying psychological and pedagogical support for the education process;

—participation in projects within the framework of international educational programs in the field of ecology and environmental protection, UNESCO, and UNEP;

—widespread and systematic dissemination of results obtained by the international community and their adaptation to the conditions of environmental training and education in Russia;

—development and realization of joint projects in the field of training and advanced training for ecologists and scientific and pedagogical personnel;

—creation of an international methodology coordination center for environmental training and education;

—exchange of schoolchildren, students, and specialists in the field of environmental training and education.

Creation of a well-developed SNEVO will be a lengthy and gradual process of improving existing and developing lacking elements and branches in the structure of environmental training and education and integrating them into the system of general and vocational education.

Section 5. Priority Measures and Focuses of Environmental Restoration

In accordance with the Russian Federation law "On Environmental Protection" (Section 1, p 4), the following must be protected against pollution, spoilage, damages, exhaustion, and destruction:

—natural ecological systems and the ozone layer;

—land, mineral resources, surface water and groundwater, the atmosphere, forests and other vegetation, animals, microorganisms, the genetic stock, and natural landscapes;

—state nature preserves, nature reserves, national nature parks, natural monuments, rare or endangered plant and animal species, and their habitats.

On the basis of the above, priority issues that require the development of programs at the federal level have been defined.

5.1. Focuses of Environmental Protection and Efficient Natural Resource Use

Basic measures to improve the environmental situation in Russia as applicable to various environments and resources are as follows.

5.1.1. Water Resources

Water resources are polluted virtually everywhere in Russia.

The level of pollution of surface water varies widely. Levels in excess of the MPC [maximum permissible

concentration] for petroleum products, organic substances, ammonium and nitrite nitrogen, zinc, and other pollutants are found in 20-40 percent of all samples analyzed.

Discharge of waste water by enterprises and municipal facilities has resulted in the degradation of many aquatic ecosystems. Agriculture has a considerable effect on the quality of surface water through farming, particularly irrigated farming, pasturage, livestock farms, and other facilities that represent a major source of organic substances and pesticides in natural water. The adverse effects of economic activity are reflected most markedly in the state of small rivers, many of which have been turned into waste-water canals and are clogged with reeds, are silted up, and have courses that have to a considerable extent lost their carrying capacity and drainage ability.

In order to protect and make efficient use of Russia's water resources, it will be necessary in 1993 to draft an environmental program entitled "Efficient Use of Water Resources and Restoration of Water Quality," to include:

—development of a methodology for determining and standards governing environmentally permissible diversion of water resources from river watersheds;

—revision of the methodology for calculating maximum permissible content standards, with the goal of calculating the pollutant burden on bodies of water by including fallout from the atmosphere and watershed runoff (i.e., drainage from drained land, unchanneled and untreated waste water from cities and industrial sites, and agricultural runoff);

—with consideration for the aforementioned standards, development and approval of comprehensive plans for the use and protection of water resources in the principal watersheds of rivers, and in particular for regions with an acute environmental situation;

—development of the status of specially protected river watersheds and a corresponding Russian law;

—completion of the development of plans for water protection zones (strips) along rivers, demarcation of boundaries of shoreline strips, and establishment of regulations governing natural resource use in these, particularly in river watersheds in the Central, Central Chernozem, Volga, and Northern Caucasus economic regions;

—implementation of a series of measures to reduce pollution of bodies of water and halt most discharges of untreated waste water into bodies of water by 1996;

—development and implementation of measures designed to completely halt log drives;

—use of the introduction of water-conserving technologies to stabilize and then reduce the amount of fresh water diverted for industrial needs;

—reduction in the discharge of heavy metal salts, toxic compounds, and biogenic substances into marine basins to levels that will ensure stabilization of marine ecosystems;

—development of technology and efficient equipment to clean up oil spills in marine basins and shelf deposits of heavy fractions of oil pollutants;

—continuation of work on engineering and technical support for the environmental safety of marine transportation, and development by 1994 of methods and technical means of conducting loading and unloading operations with chemical cargo that is carried in bulk solid or liquid form, which will prevent the release of pollutants into the environment. By 1995, all granular chemical cargo must be transported in packages or in especially designed railway cars. Efforts to improve the designs of tanker and dry-cargo ships must be speeded up, including through their outfitting with environmental protection equipment;

—development of environmentally safe methods and technical means of exploring and processing sea floor resources, utilizing foreign experience;

—completion of a geological survey of the continental shelf, including geo-ecological mapping, first near major urban, industrial, recreational, and defense agglomerations, and also within the bounds of the most dangerously seismically active maritime zones along the coastline of the Caucasus, the Crimea, Kamchatka, and Sakhalin;

—development of a methodology for short-term and long-term prediction of destructive earthquakes in seismically active maritime zones in the Pacific and Alpine-Mediterranean seismic belts;

—substantial improvement in public water supplies and improvement of drinking water quality to public health standards by 1995, toward which end it will be necessary:

—to ensure the use of underground water, as a rule, as sources of drinking water and water for household use;

—to reduce the use of drinking water for technical purposes by a factor of 1.5;

—to develop new combined methods of decontaminating drinking water and its conditioning, including desalination, iron removal, fluoride removal, and so on;

—to do research on and start up production of absorbents to remove radionuclides from drinking water;

—to oversee the manufacture of portable installations for collective and individual use to treat and disinfect drinking water in rural areas and under field conditions;

—to establish enterprises to manufacture water measurement equipment to meet water users' demand for means of monitoring the amount of water they divert and discharge;

—to create capacities capable of supplying the public with bottled drinking water;

—to expand efforts to build and renovate water supply and sewage systems, as well as facilities for thorough treatment of waste water in the republic's cities and other population centers;

—to develop means and ways of utilizing the residue that accumulates at water supply and sewage facilities;

—to develop programs to increase Russia's production of the basic chemical reagents for drinking water production (aluminum sulfate, liquid chlorine in containers and tanks, and polyacrylamide);

—to reassess construction standards and regulations in the field of sewage system planning, making provision therein for a ban on acceptance of substances by community sewage systems that cannot be removed by biological treatment facilities;

—to establish a specialized industrial base to produce modern and high-efficiency water filtration equipment for complete installations, pumps, turbines, measurement and automation devices, membranes, reagents, and so on;

—to create automated monitoring and control systems to maintain water quality in centralized systems for commercial and drinking water supply;

—to make provision for urgent measures to develop the centralized water supply in rural population centers.

5.1.2. The Atmosphere

Despite the substantial drop in manufacturing output (by 25-30 percent) that has occurred in virtually every sector of the economy, pollutant emissions into the atmosphere from point sources in 1991 decreased by less than 9 percent in comparison to the previous year, and totalled approximately 32 million tonnes.

There has been a steady increase in concentrations of nitrogen oxide and nitrogen dioxide. A high level of pollution often results from low-level and unorganized sources of emissions of specific (to various sectors) pollutants. The air continues to be polluted by hydrogen fluoride (in the vicinity of aluminum plants), carbon disulfide (in the vicinity of enterprises manufacturing synthetic fibers), and other harmful substances.

In order to prevent air pollution by stationary and mobile sources of pollutant emissions, it is essential that a Clean Air for Russia program be developed, to include:

—commencement in 1993 of efforts to monitor motor vehicle emissions, including compounds containing lead, sulfur, heavy particles, benz(a)pyrene, polycyclic aromatic hydrocarbons and aldehydes; development and introduction as of 1993 of state emission standards for currently manufactured and new models of vehicles on a par with standards in effect in the most developed countries;

—acceleration of the transition of transportation to compressed and liquified gas, introduction of special converters for motor vehicle exhaust fumes and introduction of soot filters, and establishment of diagnostic centers and stations to monitor the technical condition of vehicles; an increase in the production and use of unleaded gasolines to 80 percent by 1996;

—complete resettlement of residents out of sanitary protection zones around enterprises no later than 1995 and according to schedules agreed upon with local soviet organs, regarding this as a priority social and economic objective;

—implementation of measures that will make it possible to reduce emissions of specific toxic substances (compounds containing chlorine, fluorine, carbon disulfide, hydrogen sulfide, mercury, lead, methylmercaptanes, paprine proteins, individual hydrocarbons, and so on) in technological processes by 50 percent;

—a significant increase in the production of low-ash and low-sulfur types of fuel, to be used primarily in areas with an acute environmental situation;

—increase by 43-45 by 1995 the number of cities with a network of stationary stations and points for monitoring the level of air pollution, and introduction of automated air pollution monitoring systems in 1993-95 in the cities of Angarsk, Berezinki, Krasnoyarsk, Magnitogorsk, Norilsk, Omsk, Sterlitamak, Salavat, Tolyatti and Cherepovets; commencement of such work in the cities of Bratsk, Nizhniy Novgorod, Lipetsk, Perm, Yekaterinburg, Ufa, Chelyabinsk, Nizhniy Tagil, Novokuznetsk, Novosibirsk, and Kemerovo;

—start-up of serial production of modern gas filtration and scrubber systems and instruments to monitor air pollution and emissions from point sources;

—reduction of sulfur oxide emissions by 50 percent in comparison to 1980 levels in the Republic of Karelia, Leningrad Oblast, and Murmansk by no later than 1995, in compliance with an intergovernmental agreement between the USSR and Finland.

5.1.2.1. Protection of the Ozone Layer

In order to solve the global international environmental problem of how to preserve the ozone layer and protect human beings from the harmful effects of ultraviolet radiation, and in compliance with the Russian Federation's obligations stemming from the Vienna Conference (1985) and the Montreal Protocol (1987), it is essential

to develop a program entitled "Production of Ozone-Safe Coolants and Compliance With the Russian Federation's International Obligations in Regard to Protection of the Ozone Layer," which should include the following measures:

—implementation of monitoring of the ozone layer and timely detection of trends toward the thinning thereof;

—construction of an environmental model based on the system "human beings—the biosphere—the ozone layer";

—development of a proposal to ensure environmental safety in the development of Russian Federation industry;

—introduction into the country's economy of ozone-safe coolants for refrigeration equipment and components for foam plastic materials using alternative compounds and aerosol packaging with ozone-safe propellants, as well as those using no propellants. Current production facilities that use ozone-damaging substances must be completely rebuilt in order to make them capable of using hydrocarbon propellants, replacing fluorine-containing solvents and developing formulas for new detergents for cleaning various types of equipment;

—creation of alternative halocarbons and chlorofluorocarbons (CFC's) for use in existing machines and equipment;

—conducting of efforts in connection with the collection and processing of significant quantities of ozone-destroying substances that are currently in use in various systems and pieces of equipment in many industries.

5.1.3. The Land and Soil

Processes of land pollution and degradation, and the disruption and destruction of soils, particularly in farming areas, continue to develop in a catastrophic manner.

Enormous environmental and socioeconomic damage is done by soil erosion and formation of ravines, contamination of the land with toxic and radioactive substances and consumption- and production-related wastes, desertification of pasture land in arid and tundra zones, disruption of the land in the process of mining, construction, geological exploration, and other types of work, packing and degradation of soils due to the use of heavy agricultural equipment, degradation of soils due to irrigation and drying, losses of valuable land due to flooding and subsoil flooding as a result of hydraulic installation construction, increasing soil acidity due to the effects of acid rain and use of acidic chemical fertilizers, and the progressive development of floods, landslides, and land slippage.

These negative processes are occurring over areas totalling hundreds of millions of hectares. The land area contaminated by hazardous substances exceeds 62 million hectares.

In order to increase the sustainability of agricultural production in Russia, the Government of the Russian Federation has developed and approved the State Comprehensive Program To Increase Soil Fertility in Russia (Government Decree No. 879, issued on 17 November 1992).

That program includes:

—greater consideration for ecology in agriculture and other land use in the process of land reform and the interfarm redistribution that will occur in 1993-95;

—development and implementation of republic and regional programs to protect land against degradation and conserve and restore lands already degraded;

—comprehensive study and mapping of land resources and the soil and vegetative cover in order to create a basic foundation for a cadastral land map, as well as comprehensive study and mapping of agricultural land with regard to humus content, micro- and macro-elements, heavy metals, and residual quantities of pesticides, nitrates, and radionuclides;

—development in 1993-94 of scientific groundwork for agriculture and land use, and economic incentives for efficient land use;

—conducting of rapid hydrogeological and geological engineering research to predict the water-salinity ratio and the balance of soils and groundwater, as well as to make recommendations concerning ways of preventing negative effects from land improvement;

—development of a program to restore land, the condition of which has worsened as a result of swamp formation and salination;

—changes in the structure of capital investment in land improvement efforts that will increase the proportion of work done to radically improve low-productivity farmland and make it arable; tighter monitoring of strict compliance with environmental protection requirements in the course of the construction, renovation, and use of land improvement systems, as well as during the use of areas thus reclaimed;

—plantings in 1993-95 of protective woodlands on an area of at least 225,000 hectares, including field-protecting windbreaks on 72,000 hectares;

—an increase in protection of crops from pests and diseases by biological means to 80 percent in soil under cover and to 40 percent under field conditions;

—substantial reduction in the area of waterlogged land;

—rapid recultivation of disrupted land, with the goal of reducing disrupted areas by at least 30 percent by

1995; recultivation over an area of 384,000 hectares, including at least 188,000 hectares for use as farmland;

—a 25 percent reduction by 1995 in the amount of fertile topsoil in storage, with improved utilization thereof in the reestablishment of fertility on recultivated land and low-productivity farmland; improvement of low-productivity agricultural land through application of fertile topsoil to an area of 50,000 hectares;

—reassessment of standards for the number of livestock permitted per unit of land, with consideration for the specific nature of their care and the pasturage methods employed; by 1995, development of a measure to regulate the number of livestock on the basis of the current and potential yield of land used for feed production;

—a halt to processes producing lower soil fertility through improved quality and efficiency in the use of organic fertilizers. By 1995 use of organic fertilizers should be increased to 600 million tonnes, and by the year 2000 to 700-750 million tonnes, through improvement in the storage and processing of manure, widespread use of straw, peat, sapropel, and waste products from agricultural and industrial production;

—development of a system of measures in regard to the comprehensive application of chemical fertilizers and pesticides, with provision for their safe use in agricultural production;

—development of a program to create agricultural equipment with permissible effects on soils;

—a ban on the use of lands of natural preservation-related, therapeutic, recreational, historical, or cultural significance for industrial and agricultural purposes;

—a halt to the allocation of particularly valuable agricultural land for state and public needs;

—granting of areas to small peoples and ethnic groups for traditional natural resource use that will not be subject to expropriation or industrial development;

—conducting in 1993 of an inventory of land disrupted in the course of mining, geological exploration, construction, and other work, with the findings of this inventory to be used to implement essential measures aimed at accelerating and improving the recultivation thereof;

—regulations based on the economic requirements of tracked vehicle use in the tundra zone; accelerated development and production of special regional equipment that does not disrupt the North's soil and vegetative cover (using pneumatic treads, air cushions, and so on);

—development and implementation of a comprehensive program to protect Russian Chernozem soils from degradation and restore their fertility;

—preparation of recommendations of ways to improve regional organization and structure in order to create sustainable and self-regulating landscapes;

—development and implementation of technological complexes employing special machinery for recultivation work and efforts to increase the productivity of low-productivity agricultural land;

—establishment of a hybridization center to develop new, improved strains of plants for use in the recultivation of disrupted and polluted land and in increasing the productivity of low-productivity and degraded agricultural land;

—development of handbooks of informational, normative, and technological materials on recultivation of disrupted land and protection of land resources during mining operations;

—development of criteria and methodology for environmental economic assessment of the anthropogenic effects of industrial and other enterprises on land resources, as well as a methodology for environmental economic assessment of the operations of existing enterprises and planning of new enterprises.

The Government of the Russian Federation has developed and approved a State Program for Land Monitoring in the Russian Federation (Russian Federation Government Decree No. 100, issued 5 February 1993) for the purpose of gradual introduction of land monitoring in the Russian Federation; this will include a system of observations on the condition of land for the purpose of timely identification of changes, assessment of those changes, and warnings and identification of the effects of negative processes.

This program makes provision for:

—creation of a base of legal standards and scientific methodology for land monitoring;

—a landscape and environmental classification of Russia's territory, including identification of areas of occurrence of the principal negative processes, broken down by type and by the degree of their effect on the land's condition;

—creation of a land monitoring information bank;

—improvement of existing and introduction of new methods of technical means and technologies for land monitoring;

—creation of organizational structures for land monitoring.

5.1.4. Underground Resources and Mineral Resources

For many years there have been high levels of losses connected with the underground mining of coal (23.5 percent)—including coking coal (20.9 percent)—chrome ore (27.7 percent) and potassium salts (62.5 percent)

The state suffers serious harm from the loss of valuable components and incomplete refining of minerals once they are mined. For example, more than one-third of all tin and approximately one-fourth of all iron, tungsten, molybdenum, potassium oxide, and phosphorus pentoxide are currently lost in the process of ore enrichment. Furthermore, losses during the enrichment process exceed losses connected with mining by a factor of seven for iron and by a factor of five for tungsten and tin.

Serious harm is done by enterprises' desire to selectively work the best sections of deposits, resulting in the accumulation of stockpiles of low-quality minerals and loss of their industrial significance.

The legal and economic foundations of complete and efficient utilization and protection of underground resources are set forth in the Russian Federation law "On Underground Resources." That law (Section 1, p 3) states that determination of the strategy for use of, the rate of reproduction of, and the further expansion and improvement in quality of the mineral raw materials base is to be made based on development and implementation of federal programs.

In order to achieve efficient utilization of mineral resources, it is essential:

—to develop and enact "Regulations for the Protection of the Environment in Connection With Underground Resource Use";

—to develop and implement measures to improve the management of the state's underground resources. When licenses are issued to use underground resources, highly efficient use of those resources and protection of the environment by the underground resource users must be ensured;

—to carry out an inventory and reevaluation of reserves for the 25-30 most important types of minerals, taking into consideration the latest advances in equipment and technologies for the mining and processing of minerals, stricter environmental protection requirements, and changes in prices for the products of the mining sectors of the economy;

—to implement a series of measures to ensure efficient and complete utilization of mineral deposits, including development and introduction of mineral mining equipment and technologies that produce the maximum possible and most economically feasible level of mineral extraction, a transition to comprehensive technological approaches to development of deposits, expansion of the spectrum of usable components produced through in-depth processing of mined minerals, and achievement of complete utilization and use of wastes from the mining and mineral refining industries;

—to lay the scientific groundwork and create a base of laws and standards and an economic mechanism to provide incentives for the efficient and environmentally safe development of the underground realm, including projects for possible nontraditional uses of exhausted mines for the benefit of the economy;

—to conduct comprehensive geo-ecological monitoring of the environment for the purpose of laying the groundwork for its efficient use and preservation and the protection of areas from dangerous and catastrophic natural and technogenic effects;

—to conduct a geological, technological, and economic assessment of technogenic deposits;

—to develop and make the transition to new economic relations between geological survey organizations and enterprises in the mining industry;

—to ban operations by enterprises that mine and refine minerals but are not equipped with the technical means for recording and monitoring the quantity and quality of the mineral raw materials mined, refined, or lost by them.

5.1.5. Specially Protected Natural Areas

Specially protected natural areas in the Russian Federation form a unified functional system that is set aside for the preservation and study of natural diversity and supports ecological diversity and the conducting of environmental monitoring.

The territory of specially protected areas is distributed as follows. Preserves occupy 1.2 percent of the country's territory, reserves another 2 percent, and national parks 0.2 percent.

In order to ensure inexhaustible use of animal and plant life, a program must be developed to preserve and restore the species diversity of flora and fauna and to preserve the biota's genetic stock.

That program must include:

—development and implementation of a program to establish a system of specially protected natural areas, with provision for an increase by 1995 in the area of preserves by 18.8 million hectares and national natural parks by 12 million hectares, and by the year 2000 by another 5.8 million hectares and 6.3 million hectares, respectively. This will bring their totals (including existing areas) to 51.6 million hectares (3.3 percent of the republic's total area) by 1995 and to 63.7 million (3.7 percent) by 2000;

—focusing of the management of nature preserves, national parks, and reserves of federal significance in

a single organ, the Russian Ministry of Environmental Protection and Natural Resources;

—expansion of the rights and functions of preserve and national park staff to ensure effective protection of preservation areas;

—establishment of a state planning and survey service to organize specially protected natural areas;

—provision of directed funding for research in the field of preserve management, allocation of the necessary budget funding for the planning, establishment, and development of newly organized state preserves, national parks, and reserves of republic-wide significance;

—determination of a procedure for the organization of national parks, assignment of capital investment limits to them, and allocation of physical, technical, and financial resources to them;

—development of indices by which to assess the results of operations by national parks and state preserves;

—study of the interaction between national parks and other land users to organize the protection and efficient use and reproduction of natural resources and to provide cultural, household, and information services and environmental education to the public;

—creation of a unified central data base on the dynamics of natural processes throughout the entire territory of the republic within the unified Chronicle of Nature information retrieval system.

5.1.6. Forests, Flora, and Fauna

One of the most important problems in the ecological balance is the restoration of forests. In the Russian Federation, forest restoration efforts are being carried out to an extent that exceeds the amount of clearcutting currently being done. In 1991 Russia cut 1.417 million hectares of forest, and replanted forests on an area of 1.562 million hectares. According to foresters' estimates, reforestation needs to be done on 1.276 million hectares. However, in a number of oblasts and republics the quality and effectiveness of reforestation efforts are low. Moreover, due to the use of equipment and technologies by the timber industry in recent years that result in the virtually complete destruction of the forest ecosystem, large amounts of new growth and young trees of valuable species are dying in Russia's mixed forest zone, and undesirable species replacement is occurring.

In accordance with a decree issued by the RSFSR Council of Ministers on 16 March 1990, No. 93, "On Urgent Measures To Improve the Environmental Situation in the RSFSR in 1990-95 and Principal Focuses of Environmental Protection in the 13th Five-Year Plan and the Period up to the Year 2005," in 1990 the RSFSR Ministry of Forestry drew up a "State Program for Reforestation in Russia in the Period up to the Year 2005." By decision of the Russian Government (in a protocol issued on 28 September 1992, No VM-P42-31), the Forest Committee under the Russian Ministry of Environmental Protection, the Russian Ministry of Economics, the Russian Ministry of Finance, and the Russian Ministry of Agriculture were directed to amend that program, with consideration for current legislation and the transition to market relationships. When amended, the program will specify the amount of work to be done and the physical, technical, and financial resources that work will entail.

Successful reproduction of forests can be achieved only on the basis of close interconnection and a balance among technological processes used in cutting, reforestation, cultivation of timber stands, and organization of effective conservation and protection of forests, combined with appropriate scientific support and physical and technical supplies. A lack of balance in any measure will result in the inefficient functioning of the entire system.

Implementation of this state program will include:

—reduction in the amount of clearcutting, replacing it with selective and gradual harvesting, and efforts to ensure that forestry requirements are complied with in the process of timber harvesting;

—establishment of a forest ecology monitoring service, particularly in regions with a high concentration of enterprises in the nonferrous and ferrous metals industries and the chemical and petrochemical industries, as well as regions with radioactively contaminated forests, the Lake Baikal watershed, the Far Eastern Region, and other regions where there exists a real danger of disruption in the environmental balance;

—an increase in the effectiveness of reforestation efforts, the survival rate and quality of artificially created stands, targeted reforestation of stands of oak, beech, cedar, and others of the most valuable tree species, and expansion of special-purpose tree farming;

—creation of protective forest plantings to prevent water and wind erosion; reconstruction and repair of previously established protective stands;

—preservation of the current levels of timber harvesting and young tree stand thinning, coupled with improvement of quality and improvement in the means of conducting such harvests;

—development of transportation access to forests and an increase in the amount of repair and maintenance work on existing forest drainage systems;

—improvement of forest seed production and nursery farming based on production of high-quality seeds and selection of planting materials;

—improvement in methods of protecting the forest against insect pests and diseases, with an emphasis on the use of biological methods and means, tighter

monitoring of occurrences of insect infestations and diseases, and improvement in ground-based forest protection equipment.

During the period in question, the volume of work in connection with forest reproduction is planned at the 1992 level, or with a slight increase by 1995.

As a result of implementation of this program, during this period the Forest Committee will carry out forest restoration over an area of 2.53 million hectares, including plantings of cedar forest on 92,000 hectares and oak on 56,000 hectares. A total of 6.5 million hectares will come of age and be reclassified as commercial stands of young timber.

Due to a protracted drought in a number of regions of Russia this year, there has been a marked increase in the incidence of forest fires. A significant contributing factor to the inadequate level of forest protection against fires was the chronic shortage of budget allocations for such purposes, the poor physical and technical infrastructure of forest firefighting services, and sharp increases in the cost of leasing aircraft and the prices of physical resources and equipment.

In order to improve protection against forest fires, and in compliance with Russian Government Decree No. 254, issued on 28 July 1992, the Forest Committee, in conjunction with other affected ministries and agencies, has developed a program to protect forests from fire in 1993-97.

That program makes provision for:

—reinforcement of existing airborne and ground-based forest firefighting services, plus creation of new units for the rapid detection and extinguishing of forest fires, with those units to be provided with physical and technical resources in line with scientifically established standards;

—establishment of special mobile units in regions with large areas of forest to fight major forest fires, those units to be equipped with all-terrain firefighting equipment and the means of transporting it;

—accelerated development of designs and manufacture of tanker aircraft to fight forest fires directly from the air;

—development and introduction of space-based information support for forest fire protection efforts and monitoring of the forest fire situation, as well as a system for detecting and providing up-to-date information on fires as they occur, along with other operational information;

—establishment of a computer network and communications system of unified interagency dispatcher stations for ongoing management of forest fire prevention;

—allocation of budget funding for the operating expenses and centralized capital investment required for air- and ground-based forest protection.

In order to protect and efficiently utilize plant and animal resources, it is essential:

—to develop and perfect legislative foundations, standards, and regulations for the protection and reproduction of animal life and regulation of hunting, and to define measures to increase penalties for violations of the requirements thus established;

—to create an effective system for the protection and use of plants (including forests) and animal life (including fish resources);

—to continue to develop and perfect methods for the comprehensive management of forestry, hunting, and fishing;

—to conduct an inventory of and map the habitats of rare and endangered plant and animal species, and to create and expand existing genetic banks;

—to set environmentally justified limits on the procurement (harvesting) of wild medicinal and food products from the forest and on the basis thereof to organize the industrial use and reproduction of those resources;

—to provide state record keeping and state cadastral mapping of plant and animal resources and to maintain the Russian Red Book on a qualitatively new level, with consideration for the economic independence of republics and regions;

—to implement a series of measures to prevent desertification and degradation of steppe vegetation;

—to expand the network of botanical preserves, genetic reserves, and preserves for distinctive forest boundaries and mast-producing areas;

—to develop and establish a new procedure for the creation, expansion, and storage of botanical and zoological collections;

—to develop and introduce a system of economic, legal, and ecological standards for the use of plants;

—to develop and put in practice a new economic mechanism for regulation of the use of animal resources, defining a procedure for assigning hunting lands on a lease basis and issuing all types of permits for the rights to use animal resources;

—to continue the study of the effects of animal activities on the formation of biological and geological cenoses, conduct a classification by landscape type, and on the basis thereof determine the optimum density and number of wild animals for each region, as well as limits and quotas on their removal;

—to ensure monitoring of compliance with international and interrepublic programs and conventions to protect rare and endangered migratory animals and plants, and to develop foreign economic relations in that area of activity;

—to continue to improve methods of surveying rare and particularly valuable types of animals in the wild, with their subsequent reintroduction into nature and implementation of measures to make broad practical use of these methods;

—to make fuller use of advances in science and technology and the system of aerial and space observation of the distribution and migrations of wild animals, in particular saiga, wild northern reindeer, and other large hoofed animals, sea mammals, and waterfowl;

—to develop fishing in Russia's internal bodies of water, to increase the effectiveness of efforts to protect and reproduce fish populations, to increase the release of fry of valuable commercial fish species into natural bodies of water and reservoirs, and to establish fish hatcheries capable of producing more than 340 million fry annually.

5.1.7. Resorts and Other Recreational Areas

In order to preserve the therapeutic and curative functions of naturally occurring natural sites, it is essential:

—to restrict economic activities in the vicinity of resorts and unique recreational areas and to remove from those zones enterprises that are not connected with the functioning and development of resorts and therapeutic facilities or with public services, while ensuring the most favorable sanitary conditions for therapy and recreation;

—to develop in the 1993-94 period scientifically based criteria for maximum permissible anthropogenic burden on the environment of resort and recreational areas;

—to ensure by 1995 the development of regional comprehensive plans for environmental protection at resorts of republic-wide significance;

—to set up a system for monitoring the state of natural therapeutic resources, landscapes, bodies of water, the air, soil, and vegetation;

—to develop a cadastral map of areas in Russia that are of recreational significance;

—to develop an economic and legal mechanism to regulate the recreational use of nature (accelerated amortization of fixed capital at recreational sites and facilities, special requirements governing development of natural recreational resources, and policy on personnel, prices, and taxes).

5.2. Urgent Measures To Bring About Environmental Restoration of Russia's Regions

The most important goal of environmental restoration in the Russian Federation is to reduce the worsening conflicts between the siting and condition of production facilities and the sustainability of the natural development of ecosystems at various levels.

One important element in solving environmental problems in the region is to ensure the natural development of individual ecosystems and preserve unique natural complexes and landscapes. This will necessitate the development of environmental regulations governing natural resource use at the regional and territorial levels, with assignment of a priority classification to a given region's ecosystems, unique natural complexes, and landscapes.

5.2.1. The Volga-North Caspian Region

The Volga-North Caspian Region consists of 32 oblasts and republics in the Volga Region.

The environmental situation in this region is hallmarked by a combination of a significant quantity of anthropogenic factors influencing the environment and the functional activities of the environment's components. The Volga-Caspian basin has a predominance of industries that produce the most toxic wastes and have ineffective treatment facilities. The most harmful types of production are enterprises and associations in the chemical, oil and gas refining, cellulose and paper industries, the fertilizer and pharmaceutical industries, and so on.

Many industrial enterprises have mostly outdated technology, resulting in the creation of large amounts of liquid, solid, and gaseous wastes.

The particularly complex environmental situation in the Volga watershed has necessitated the development of a program entitled "Amelioration of the Environmental Situation and Increase in Resource and Economic Potential in the Volga Watershed (Revival of the Volga)."

This program makes provision for:

—development and implementation of a series of radical measures to bring about a substantial reduction in the release of pollutants into the environment, lowering of atmospheric emissions to permissible levels, and discontinuation of polluted waste water discharges into bodies of water;

—development and approval in 1993 of a program on the construction of facilities for the thorough removal of biogenic elements from waste water and implementation of other measures to combat the eutrophication of bodies of water in the watershed, with consideration for advanced foreign and Russian experience in this field;

—construction in the 1993-95 period of enterprises and facilities for the utilization, neutralization, and disposal of toxic industrial, household, and other wastes with capital investment funds allocated for the development of those sectors of the economy, as well as expansion and renovation of existing facilities using associations', enterprises', and organizations' own funds;

—further development of economic facilities in the Volga River watershed, primarily through conservation of water resources and a significant reduction in water use per unit of product manufactured;

—completion in 1994 of the outfitting of all water collection and water discharge installations and devices in the region with modern means of recording water use;

—implementation of a series of efforts to reduce areas with low water levels, create water protection belts (zones), reinforce riverbanks, and improve the condition of agricultural land in areas adjoining reservoirs, as well as measures to protect Nizhniy Novgorod from flooding and land slippage;

—manufacture of special vessels and other technical means for the rapid cleanup of accidental spills of petroleum and other pollutants, with provision of those vessels and technical means to water transportation enterprises in the 1993-95 period;

—development and manufacture of tankers and other vessels for use in the Volga-Caspian watershed with designs that will prevent spills of petroleum products and other environmentally hazardous substances in the event of accidents involving vessels carrying such cargos;

—clarification of regulations governing ship traffic and permissible traffic volume along specific sections of the river, with the objective of reducing the adverse effects of ship traffic on bodies of water and optimizing cargo transportation;

—acceptance in full by departmental transshipment stations, storage depots, and oil storage facilities of oil and petroleum products collected during cleanup efforts following oil spills, garbage, ballast water, and bilgewater for subsequent treatment and utilization, beginning in 1993;

—development and implementation of measures to lower the level of pollution in bodies of water and of other harmful effects on the environment during channel-dredging work on rivers in the Volga-Caspian watershed;

—implementation in the 1993-95 period of a series of organizational, economic, agrotechnical, forest improvement, and hydraulic engineering measures to end erosion processes and water pollution by the products of soil erosion, pesticides, and chemical fertilizer, to fundamentally improve the condition of the land and to provide scientifically based regulation of livestock pasturage and carry out vegetation improvement and other measures to prevent desertification of pastureland in land along the Caspian Sea and to restore the productivity of such land;

—development and implementation of measures to restore and improve the condition of plant and animal life in areas adjoining the Caspian Sea, as well as along the lower reaches of the Volga River;

—a substantial increase in the 1993-95 period in the amount of work done to improve the condition of small rivers, strict compliance with regulations governing water protection zones, and complete cessation of land cultivation in water protection zones along rivers and other bodies of water in the Volga-Caspian watershed;

—consideration and resolution in the 1993-95 period of issues pertaining to expansion of preservation zones along the Volga River and establishment of a system of biological reserves in those zones, with priority development of fishing and restrictions on other types of economic activity;

—restrictions on the filling of reservoirs at the Nizhnekamsk Hydroelectric Power Station and the Cheboksary Hydroelectric Power Station, in order to reduce losses of agricultural land and prevent other adverse effects on the environment in the vicinity of those reservoirs;

—changes in regulations governing the use of water resources in reservoirs along the Volga-Kama chain of hydroelectric power stations in view of the need to create more favorable conditions for intensive development of fishing and the reproduction of fish populations;

—equipping of all water diversion and water discharge facilities in water collection and drainage systems with effective fish protection devices in the 1993-95 period;

—conducting during the 1993-94 period of in-depth research on the restoration and stabilization of ecological systems and realization of measures necessary to preserve and restore populations of sturgeon and other valuable fish species;

—efforts toward comprehensive reconstruction of rice cultivation and irrigation systems in the Volga-Caspian watershed in order to eliminate completely the discharge of polluted runoff into fishing areas by 1995;

—completion in the 1993-95 period of measures to increase water supply in the Akhtuba River and improve the state of fish spawning grounds in the Volga-Akhtuba watershed.

5.2.2. The Baltic Sea Basin

In accordance with the Convention on Protection of the Marine Environment in the Baltic Sea Region (1974 and 1992), various declarations (1988, 1990, and 1992), the Convention on Long-Distance Cross-Border Air Pollution (1979), the intergovernmental Soviet-Finnish Agreement on Cooperation in the Field of Environmental Protection (1985), urgent measures stemming from Russia's obligations, and the Declaration on Revival of the Baltic Sea (1990), and in order to restore the normal ecological balance, it will be necessary to draw up a comprehensive joint program of environmental measures in the Baltic Sea basin.

That program will include:

—a halt to discharges of untreated or inadequately treated waste water, achieving a 50 percent reduction in the release of organic substances, nitrogen and phosphorus compounds, salts, and heavy metals into bodies of water by 1995;

—completion by 1994 of construction of a series of treatment facilities and sewage networks in St. Petersburg, Kaliningrad, Petrozavodsk, Pskov, and other cities for the purpose of complete biological purification of waste water, with establishment of local treatment facilities at enterprises. Construction should begin on a system of storm sewer lines with waste water routed to treatment facilities. Also slated for construction are facilities to provide additional treatment of waste water and a high degree of purification from nitrogen and phosphorus compounds, and secondary use of this additionally purified water in cities and by industrial enterprises;

—implementation by 1995 of a program to protect the environment at enterprises in the timber, cellulose, and paper industries in the Republic of Karelia, Leningrad Oblast, and Kaliningrad Oblast, eliminating discharges of untreated waste water and reducing pollutant emissions into the atmosphere;

—development and gradual introduction by 1995 of environmentally safe methods of agriculture and use of food industry facilities that will preclude adverse effects on water protection zones and the release of production- and livestock-related waste water, organic and chemical fertilizers, and toxic chemicals into bodies of water;

—reconstruction of docks and cargo handling facilities at ports, to ensure environmental safety in connection with their operations;

—development of methods of air- and ship-based long-range monitoring of the state of the marine environment, with the goal of quickly detecting pollution sources and initiating steps to eliminate them;

—participation in the creation of a unified international system to monitor the condition of the Baltic Sea, along with development and implementation of a unified program to improve the environmental situation in the Baltic Sea basin;

—development and approval of a statute on Lake Ladoga as a natural site of national significance;

—development and gradual introduction by 1995 of a system to regulate natural resource use in the Lake Ladoga watershed, with consideration for the natural and economic characteristics of the region in question, the acuteness of the environmental situation, and international environmental quality standards;

—development of a program to make industrial production in the Lake Ladoga watershed more environmentally sound;

—development of an environmentally justified strategy for socioeconomic development in the Lake Ladoga watershed, with the goal of bringing the structure and distribution of production facilities into accordance with the natural resource potential of the region in question and reducing the acuteness of the environmental situation.

5.2.3. The Sea of Azov Basin

As a result of flow regulation along the Don and Kuban Rivers, intensive irrigation, and large volumes of permanently diverted water use, the influx of fresh water into the Sea of Azov has decreased by as much as 65 percent as compared to the average annual flow of its tributaries, and this has resulted in a change in the water balance and caused an increase in the sea's salinity from 10 to 14 percent. As a result, there has been a change in the species composition of fish populations and food organisms, with valuable fish species being replaced by less valuable ones. Increasing contamination of the marine environment has resulted in the accumulation of pollutants in aquatic biotas and has created a real possibility that the genetic stock of fish populations in the Sea of Azov will be lost.

In view of the extremely acute environmental situation in the Sea of Azov basin and the negative ecological processes occurring in it, processes that threaten to lead to irreversible changes, it is necessary to implement:

—during the 1993-95 period, a series of environmental protection measures to prevent pollution of bodies of water, conserve water, and reduce permanent diversion of water in order to halt completely all discharges of contaminated waste water by 1995 and ensure an average annual flow of at least 34 cubic kilometers of fresh water into the Sea of Azov;

—during the 1993-95 period, efforts to improve in a comprehensive manner the condition of small rivers, restore in all areas a system of water protection zones, and ensure compliance with that system, and beginning in 1993 halt the cultivation of lands in water protection strips adjacent to bodies of water;

—planting in the 1993-95 period of artificial forest areas on nonproducing areas of forest land and unused agricultural land; completion of efforts to create protective forest stands to prevent erosion processes;

—reduction in harmful emissions into the atmosphere in 1996 in cities and industrial centers along the Sea of Azov coast—Rostov-na-Donu, Taganrog, Novocherkessk, Krasnodar, and others—according to established standards, plus construction in the 1993-95 period of enterprises and facilities for the utilization, neutralization, and disposal of toxic industrial, household, and other wastes;

—broad introduction beginning in 1993 of circulatory water use and other environmental protection measures within rice irrigation systems in order to halt the release of runoff water that is contaminated with pesticides and chemical fertilizers into bodies of water;

—termination in 1994 of the use of pesticides to cultivate rice fields in Krasnodar and Stavropol Krays and Rostov Oblast, development and introduction of scientifically based zonal soil protection and water-conservation systems for use in agriculture, with provision made for restrictions on and subsequent banning of pesticides, and introduction of biological methods of protecting plants from pests and diseases; expansion of selection efforts to create disease- and pest-resistant rice strains;

—a halt to the construction of new irrigation systems until such time as existing systems have been rebuilt to increase their efficiency;

—installation of fish protection devices on all water collection and water discharge installations on collection and drainage systems;

—development of a system for the comprehensive use and protection of water and land resources in the basin of the Sea of Azov, with priority attention to urgent matters pertaining to restoration of the ecological and sanitary situation;

—implementation of a program of bank-reinforcement work, with the establishment if necessary of a specialized organization for the realization thereof, as well as the development and introduction by 1995 of environmentally safe channel-dredging work;

—during the 1993-94 period, equipping of all ports in the Sea of Azov basin with equipment to receive and treat commercial, household, and industrial waste water from ships, establishment of a service to eliminate spills of petroleum products and other substances, and equipping of that service with oil and garbage collectors, oil booms, and other essential equipment;

—research and development work aimed at preventing the dispersal in the Sea of Azov basin of hydrobiont species that are not appropriate to that ecosystem;

—study on the issue creating specially protected fishing preserves in the Gulf of Taganrog and in the estuaries and deltas of the Don and Kuban Rivers.

In view of the fact that the Republic of Ukraine discharges more than 1 billion cubic meters of polluted waste water into the Sea of Azov basin, or 24 percent of the total amount of polluted discharge in that basin, it is essential that an agreement be reached with the Republic of Ukraine in 1993 regarding coordinated measures to reduce the discharge or emission of pollutants to established levels by 1995.

5.2.4. The Black Sea Coast

In accordance with the Convention on Protection of the Black Sea From Pollution (1992), and in order to bring about radical improvement in the environmental situation in that region, it is essential:

—to ensure an annual increase in the amount of shore-reinforcement and antislippage efforts, in order to essentially achieve shoreline stabilization in the resort region by 1995;

—to implement a series of measures to reduce air pollution by vehicle exhaust to established levels and to establish monitoring and regulatory stations, equipping them with the necessary equipment and instruments;

—to halt the excavation of sand and gravel in coastal waters and from riverbeds in 1993;

—to develop, with consideration for a prior inventory, a scientifically based concept for the socioeconomic development of the Black Sea coast resort zone in Krasnodar Kray, determining the levels of optimum and maximum recreational burden on its natural therapeutic resources;

—to implement urgent measures to stop environmental pollution by the Tuapse Transshipment Oil Depot, and also to increase deliveries of lead-free gasolines to resort cities for use in automobiles and other means of transportation, in order to make a full transition to that type of fuel possible in 1993;

—to equip port facilities with equipment to receive and treat waste water from ships;

—to build and put on line in the 1993-95 period facilities to treat: storm sewer runoff in the cities of Sochi, Tuapse, Anapa, and Gelendzhik; deep-sea releases of waste water from the city of Tuapse in 1993; and the same in the cities of Sochi, Novorossiysk, Gelendzhik, and Anapa in 1995;

—to reduce discharges of biogenic substances by 50 percent by 1995, and then to halt completely the discharge of polluted waste water into bodies of water in the Black Sea basin;

—to create a system of water supply and sewers by 1995 that will be fully capable of meeting demand for water and sewage management in the cities of Sochi, Tuapse, Gelendzhik, Novorossiysk, and Anapa and in resort towns;

—to continue construction of a highway to bypass downtown Sochi, renovation of individual sections of the state highway connecting Novorossiysk, Tbilisi, and Baku, and renovation of transportation hubs within city limits;

—to ban in all areas as of 1993 the use of bottom trawls in commercial fishing, as these have an adverse effect on aquatic biocenoses;

—to expand the network of specially protected bodies of water and their adjacent territories in the Black Sea basin, particularly in the vicinity of Cape Tarkhankut and the Gulf of Karkinit;

—to assess effects on the Black Sea ecosystem by hydrobionts accidentally introduced into the Black Sea basin and draft recommendations on preventing their negative effects on the sea's characteristic fauna;

—to do research on the dynamics of the Black Sea's condition under the influence of anthropogenic pollution and variations in the level of the hydrogen sulfide layer, and based on the results thereof to develop a strategy of action to restore marine and coastal ecosystems and the environment. Necessary measures must be taken to involve states along the Danube River and the Black Sea Coast as well as international organizations in these efforts.

5.2.5. The Arctic Region

Construction of waste water treatment facilities is proceeding extremely slowly in this region and is not keeping pace with increasing volumes of industrial and housing construction. Goals for the construction of water protection facilities are not being met in a satisfactory manner. Enterprises and organizations located in this region are not carrying out measures to minimize their volume of untreated waste water, are doing little to introduce progressive production technology, and have been too slow in resolving problems pertaining to the complete processing of raw materials and utilization of waste products.

The necessity of solving the North's environmental problems prompted the development of a program entitled "Protection and Efficient Use of Natural Resources in the Russian Arctic."

In view of the special significance of the Arctic Region in the formation of our planet's current climate and in determining the level of the ocean, as well as its importance as a source of territory and natural resources for the Russian Federation, it would be appropriate:

—to classify the Arctic as a natural region under a special natural use regime;

—to develop regional environmental standards to regulate economic activities within coastal and offshore areas, on the continental shelf, and in Russia's maritime economic zone;

—to establish through legislation the priority of the Arctic's native population's interests when matters pertaining to economic use of the region are decided. In order to preserve traditional forms of natural resource use, the establishment of ethnic territories should begin as of 1993;

—to designate bodies of water and water courses that are the principal sources of water supply for population centers (in particular this should be done for compact settlements of the North's small peoples), and by decisions of local soviets ban economic and other activities that could result in pollution of those water sources;

—to develop effective methods of recultivating the soil and vegetative cover of tundra and mixed forest-tundra areas;

—to ensure adequate fire protection for reindeer pasturage and forests adjoining the tundra;

—to develop and ensure as of 1993 the manufacture of specialized vehicles for survey and exploration work in the Arctic, as well as for use by the small peoples of the North to engage in their traditional trades, with equal weight distribution, which will not cause topsoil disruption;

—to shift heating of rural population centers in the Arctic zone to briquetted coal, gas, or liquid fuel that will eliminate the use of firewood in the forest tundra zone;

—to end log drives, making the transition to transportation of timber logged on the upper reaches of rivers solely by ship by 1995;

—to define routes and zones for the development of tourism, in order to prevent disruption of natural environments;

—to step up efforts in connection with the planning, industrial production, and introduction into use of environmentally clean wind-power installations to provide heat and electricity to population centers;

—to eliminate piles of timber and mud along the routes of oil and gas pipelines and to clean up and recultivate such areas, with subsequent transfer thereof to land users in amounts and for time periods agreed upon with local bodies;

—to establish facilities for the utilization and neutralization of household waste, and to build crossing points across mainline gas pipelines that intersect the migration routes of wild animals;

—to build, expand, and renovate fish farming facilities designed to compensate for damages done to fish populations in the Arctic watershed;

—to develop and organize production of equipment to contain and collect oil from water surfaces in order to fully supply such equipment by 1995 to enterprises and organizations located in the region;

—to accelerate construction of facilities to utilize by-product petroleum gas; to develop and introduce technical means of eliminating sediments contaminated by heavy oil fractions;

—to develop and arrange for production of a necessary quantity of effective technical means to remove oil pollution from soil, and by 1996 widely introduce microbiological methods of fighting oil pollution in soils.

5.2.6. The Caucasus Mineral Waters

In accordance with Russian Federation Government Decree No. 462, issued on 6 July 1992, the administration of the Caucasus Mineral Waters was assigned to develop in conjunction with the Russian Ministry of Health and the Russia Ministry of Ecology [as published] a long-range state program on the commercial and residential development of the specially protected ecological and resort region known as the Caucasus Mineral Waters. That program must make provision for:

—removal of industrial and agricultural enterprises under ministry and agency control from residential and resort zones in the region;

—amendment of the general plans of resort cities in the Caucasus Mineral Waters, an increase in the level of organizational work to implement those plans and make efficient use of the territory of those cities, with the goal of maximum improvement in the conditions of treatment, recreation, and residence for working people and preservation of natural therapeutic resources;

—development of a comprehensive regional plan to protect the environment at resorts in the Caucasus Mineral Waters, making that plan the basis for implementation of the environmental protection and sanitation improvement measures set forth in plans for economic and social development;

—creation of a unified water supply system for resort cities based on underground water resources known to exist in the Malka Aquifer;

—elimination of nonfunctional wells and removal of animal farms and complexes from the second sanitary zone surrounding resorts;

—an end to the discharge of used mineral water and other untreated waste water into any bodies of water;

—structural reorganization of the sanitarium and resort complex;

—transformation of the Caucasus Mineral Waters into an international resort center through creation of an appropriate legal mechanism to attract foreign investment.

5.2.7. The Lake Baykal Watershed

Lake Baykal is a unique natural landmark, and its problems have attracted the close attention of the public in our country and around the world. Despite the fact that the Lake Baykal watershed as a whole is not among the regions with an acute environmental situation, the lake ecosystem's sensitivity to external influences is so great that there is a threat of dangerous trends changing its basic elements, and that demands immediate action. However, a reduction in individual adverse effects cannot fundamentally change dangerous trends toward change in the environment. That will require radical structural change in environmental protection efforts. Without making a radical change in the existing ecological and economic systems in the region and lessening the adverse connections and functions which both directly and indirectly continue to harm the environment, the country will be forced to invest an ever larger portion of its gross national product in stabilization of the environment and preservation of the conditions necessary for life in the Baykal region.

In view of the above, and also in compliance with Russian Presidential Edict No 295, issued on 25 March 1992 under the title "On Urgent Measures of State Support for the Economy of the Buryat SSR" (point 11), a Comprehensive Program for the Protection and Efficient Use of Natural Resources in the Lake Baykal Watershed (Basic Aspects) has been developed.

That program contains plans to ensure:

—creation of an environmental monitoring system;

—establishment of a regional economic mechanism to ensure protection for and efficient use of natural resources;

—greater emphasis on the environment in physical production through use of low-resource, low-waste, and no-waste technological processes and highly efficient water supply systems and methods of purifying waste water and emissions of dust and gases;

—closure or restructuring of enterprises that are particularly hazardous to the environment into safe or environmentally tolerable types of production, implementation of technical refitting and renovation on the basis of Russian and foreign advances, as well as removal of production facilities from the region or their relocation in a more environmentally sustainable zone;

—primary use of more environmentally safe types of fuel—low-sulfur and low-ash coals, natural gas, and

electricity—in the shoreline protection zone; centralization of heat production, greater use of diesel, and refitting of transportation to use unleaded gas or natural gas;

—optimization of the structure of agricultural production, reduction of the area of erosion-prone areas cultivated, and implementation of anti-erosion measures;

—implementation of measures to reduce runoff of pesticides, chemical fertilizers, and organic substances from agricultural land, gradual reduction in the use of artificial means of plant protection, and development of biological methods for that purpose;

—recultivation of disrupted land in areas of mining operations;

—conducting of a high-quality economic assessment of land based on the terms of the land reform now under way and with consideration for the need to protect natural sites in the Lake Baykal region;

—intensification of environmental protection measures in the region's social infrastructure: centralization of the water supply and sewage system in cities and urban-type towns, construction of garbage processing plants, creation of green areas within city boundaries, creation of well-appointed recreation zones, and introduction of modern means of treating and utilizing municipal and household waste from small population centers;

—reestablishment of Lake Baykal's biological resources and expansion of fish breeding capacity;

—widespread introduction of scientifically based forms of managing hunting, fur farming, and utilization of other forest resources;

—directed formation and development of a unified network of protected areas, encompassing all valuable multipurpose sectors of the ecosystem in the Lake Baykal watershed;

—development of a recreational complex, with consideration for the requirements of environmental protection for natural complexes in the region;

—creation of the necessary environmental conditions for the activities of the region's population and provision of environmentally pure food products;

—creation of a system to reduce the effects of accidents and disasters, predict them, and warn the public in a timely manner;

—extensive public involvement in matters pertaining to environmental protection and efficient natural resource use in the Lake Baykal watershed.

Section 6. Basic Principles of the Mechanism for Implementation of the National Plan of Action

At the present time, there are serious difficulties with the implementation of urgent environmental protection measures to improve the environmental situation in the Russian Federation.

Based on a statement in the Russian Federation law "On Environmental Protection" (Section 111, Article 17), planning of environmental protection measures is carried out as part of programs and projections of socioeconomic development on the basis of the State Ecological Program and with consideration for the natural resource potential of individual regions.

The Russian Federation State Ecological Program is a unified, scientifically based system for the creation and implementation of environmental programs at the national, international, and regional levels, encompassing solutions to problems at various levels with a single comprehensive approach. Thus, the State Ecological Program should be viewed as an organizational and economic mechanism for the implementation of the National Plan.

We must stop the practice of dealing with effects rather than their causes, of developing measures only to eliminate existing environmental emergencies, which are, as a rule, the result of ill-conceived natural resource use manifested through the unjustified siting of production facilities and use of inadequate technologies, as has often been the practice of state administrative organs over the past 10-15 years. Therefore, one important goal is the use of existing scientific potential to develop a comprehensive approach to determining priority areas and measures within the appropriate programs, as well as a scientifically based state ecological program as the system behind those programs.

In view of the considerable amount of capital investment necessary for implementation of environmental protection measures, in compliance with the Russian Federation law "On Environmental Protection" (Section 111, Article 17, paragraph 3), those funds must be allocated as a separate item in federal, republic, and other budgets.

The Russian Federation State Ecological Program should make provision for the development of a unit of a general functional nature, which will be essential for the implementation of environmental programs at various levels.

That unit should include the following subprograms:

—monitoring of the environment and sources of influences on it; ecological mapping;

—establishment of environmental quality standards and natural resource use standards; standardization of technological processes, facilities, and products;

—an economic and legal mechanism for environmental protection and natural resource use;

—a system of state environmental monitoring and assessment;

—key areas in the protection and restoration of natural environments and the efficient use of Russia's natural resources;

—manufacture of environmental protection equipment and installations;

—improvement in the system of environmental education, training, and propaganda.

Improvement in the ecological condition of the environments and ecosystems, and their component natural sites and complexes, as well as improved efficiency in natural resource use, should be achieved through implementation of programs at various levels which take the specific characteristics of industries and regions into account, with environmental protection and efficient natural resource use possessing the status of state priorities.

Depending on their objectives, programs may be subdivided into:

—comprehensive and of varying territorial extent (regional, interregional, international, watershed-based, applicable to one natural complex, and so on);

—resource-oriented (use and protection of water, soil, forests, living resources, and so on);

—economic sector-based (environmental protection measures for various industries, transportation, agriculture, and so on).

Procedure for the development and implementation of federal directed environmental programs was established by Russian Federation Government Decree No. 638, issued on 27 August 1992.

The procedure for development of directed environmental programs includes the following stages:

—compilation of a list of one-time programs to be implemented, that list to be based on a selective and coordinated list of regional issues that can be resolved on the basis of a program; decisionmaking to further develop those issues;

—designation of a body to manage the directed program, a body that will be responsible for the creation and implementation of each specific program and the sources of development funding;

—designation of a head of program development and co-executors (this should, as a rule, be done on a competitive basis);

—approval of the technical objective of program development;

—preparation of a draft program;

—coordination of the program with affected organizations;

—approval of the program.

One essential condition for effective program implementation is the creation of a clearly functioning organizational and economic mechanism for management of the environmental program which will be adequate to its goals and objectives and to the conditions of transition to market-based relations.

That mechanism must define:

—the program's legal status;

—the administrative body and administrative structure for program implementation;

—methods of arranging physical and technical support (state orders, agreements, contracts, or leasing);

—sources of and procedure for program measure funding;

—procedure, methods, and schedules for monitoring of program implementation;

—forms of economic and other incentives for program participants;

—forms of economic and administrative liability on the part of program participants for failure to complete or for partial completion of program measures.

One specific feature of programs to reduce or prevent environmental pollution is that they set long-range limits on pollutant emissions and discharges and outline development scenarios that will ensure that the established limits are achieved.

The technical and economic justification for specific environmental protection measures should be provided during the process of preparing programs for the development of individual enterprises and industries, and programs for regional socioeconomic development, with consideration for actual financial balances. The degree of correlation between regional and industry programs and the environmental programs approved should be determined with the consent of environmental protection agencies or in the process of state environmental assessment, as provided for by legislation.

During implementation of this approach, consideration will be given to the environmental factor during development of all programs for the country's social and economic development.

Programmatic solutions to each priority issue, with consideration for their specific nature and scale, ambitious schedules for their resolution, and the need to focus resources in order to implement them, should make provision for economic support for implementation that will include designation of measures to be carried out using the federal, regional, and local budgets, as well as state nonbudgetary environmental funds at all levels.

Such measures include:

—construction of interfarm land improvement systems, environmental protection facilities and hydraulic installations, land improvement, maintenance of land improvement systems in areas populated by small peoples and at labor-short farms in the non-Chernozem zone, Siberia, and the Far East;

—research work of industry-wide significance;

—efforts to radically improve lands in connection with increased soil fertility, including the study and preparation of planning and estimate documentation;

—planning and survey work on the organization of land use;

—forest protection and restoration measures;

—hydrometeorological and environmental monitoring work;

—topographical and geodesic work;

—a program to ensure environmental safety;

—state preserves;

—construction of environmental protection facilities in preserves, as well as laboratories for the conducting of environmental monitoring;

—construction of major interregional drinking water reservoirs, as well as other water management measures intended to improve the ecological condition of bodies of water.

II. List of Measures Toward Implementation of the National Plan of Action To Implement the Decisions of the UN Conference on the Environment and Development in 1993-97

Number	Nature of Measure	Responsible Ministries and Agencies	Year Scheduled
1. System for Environmental Protection Management and Development of Environmental Monitoring			
1.1	Development and implementation of measures to improve state environmental monitoring	Russian Federation Ministry of Environmental Protection and Natural Resources [subsequently: Ministry of Environmental Protection] (as convened), Russian Federation Committee for Geology and Use of Mineral Resources [subsequently: Committee for Geology], Russian Federation State Committee for Sanitary-Epidemiological Oversight [subsequently: State Committee for Sanitary-Epidemiological Oversight], Russian Federation Center for Land Resources and Land Management [subsequently: Center for Land Resources and Land Management], Russian Federal Forest Service; Russian Federal Committee on Water Resources, Russian Federal Mining and Industrial Oversight and other affected ministries and agencies	1994
1.2.	Development of a draft program for development of the Unified State Environmental Monitoring System	Ministry of Environmental Protection, Russian Federal Service on Hydrometeorology and Environmental Control [subsequently: Russian Federal Hydrometeorology Service], Russian Federation Ministry of Economics [subsequently: Ministry of Economics], Russian Federation Ministry of Finance [subsequently: Ministry of Finance], and other affected ministries and agencies	1994
1.3	Development of a series of Russian Federation legal and normative documents defining procedure for assessing environmental effects at all stages of the investment process	Ministry of Environmental Protection, Russian Federation Ministry of Justice [subsequently: Ministry of Justice], Ministry of Economics, and other affected ministries and agencies	1993-94
1.4.	Preparation of a draft Russian Federation law on environmental assessment	Ministry of Environmental Protection, Ministry of Justice, Ministry of Economics, and other affected ministries and agencies	second half of 1993
1.5	Development of: drafts of the State Waste Program and the legislative acts required for its implementation; a list of hazardous production and consumption wastes, a system of monitoring in the field of waste management, including cross-border shipments; a system of waste certification; a draft Russian Federation law "On Fundamentals of Legislation on Production and Consumption Wastes"	Ministry of Environmental Protection in conjunction with other affected ministries and agencies	1993

Number	Nature of Measure	Responsible Ministries and Agencies	Year Scheduled
1.6	Preparation of a series of documents pertaining to ratification (signing) of the Basel (1989) Convention on Control of Cross-Border Shipments of Hazardous Wastes and Their Disposal	Ministry of Environmental Protection, Russian Federation Ministry of Foreign Affairs [MFA], Russian Federal Mining and Industrial Oversight, in conjunction with affected ministries and agencies	1993
1.7	Establishment of statistical oversight over the creation and destruction (utilization, neutralization, or disposal) of hazardous (toxic) wastes	Russian Federation State Committee for Statistics [State Committee for Statistics], in conjunction with the Ministry of Environmental Protection	beginning in 1993
1.8	Inventory of all facilities and dumps for the disposal of solid waste and production-related wastes (including spoils, accumulators, tailing storage areas, unauthorized dump sites, etc.), including those located on plant grounds	Organs of state administration under the Russian Federation's constituent republics, autonomous areas, krays, oblasts, and the cities of Moscow and St. Petersburg, in conjunction with the Ministry of Environmental Protection	1993-94
1.9	Inventory of sites where toxic industrial wastes are buried, with development of a State Registry on the basis of these findings	Ministry of Environmental Protection, in conjunction with the Committee for Geology and Russian Federal Mining and Industrial Oversight	1993-94
1.10	Inventory of sites for the disposal and storage of pesticides that have been banned or are no longer suitable for use	Organs of state administration under the Russian Federation's constituent republics, krays, oblasts, and autonomous areas, in conjunction with the Russian Federation Ministry of Agriculture [subsequently: Ministry of Agriculture] and Ministry of Environmental Protection	1993-94
1.11	Preparation of recommendations regarding measures to provide incentives for protection of underground resources and safe, environmentally balanced, efficient, and comprehensive use of mineral resources	Ministry of Environmental Protection, Ministry of Finance, Ministry of Economics, State Tax Service of the Russian Federation, Committee for Geology, Russian Federal Mining and Industrial Oversight	1993
1.12	Implementation of the following programs: Environmental Safety in Russia; Reduction in the Level of Irradiation of the Public and Production Personnel by Naturally Occurring Radiation Sources ("Radon")	Ministry of Environmental Protection, Ministry of Economics, Ministry of Finance, and other affected ministries and agencies	1993-95
1.13	Comprehensive analysis of compliance with environmental legislation and development of legal and administrative measures to intensify efforts to combat environmental violations	Ministry of Environmental Protection, Committee for Geology, Russian Federal Committee for the Fishing Industry, Committee on Land Resources, Committee on Forestry, Committee on Water Resources, Russian Federal Mining and Industrial Oversight	1993
1.14	Development and submission of a draft program for preparation of legislative acts with the goal of bringing national environmental protection law into line with international standards, ensuring sustainable development and protecting citizens' rights to access to information regarding the state of the environment and to existence in a healthful environment	Ministry of Justice, Ministry of Environmental Protection	1993
1.15	Preparation of a draft law "On a Unified System of State Natural Resource Cadastral Mapping"	Ministry of Environmental Protection and Ministry of Justice, in conjunction with affected ministries and agencies	1993
1.16	Development of a draft scientific and technical program entitled "Comprehensive Cadastral Maps of Natural Resources"	Ministry of Environmental Protection, Ministry of Economics, and Ministry of Finance, in conjunction with affected ministries and agencies	1993-94
1.17	Preparation of a draft law "On Licensing of Natural Resource Use"	Ministry of Environmental Protection, Ministry of Justice, Ministry of Economics, and Russian Federation State Committee on the Administration of State Property [subsequently: State Property Committee], in conjunction with affected ministries and agencies	1993
1.18	Preparation of a statute on consideration for the environmental factor during privatization of state-owned and municipally owned enterprises	State Property Committee, Ministry of Environmental Protection, and Ministry of Economics	1993

Number	Nature of Measure	Responsible Ministries and Agencies	Year Scheduled
1.19	Development of a draft law "On Environmental Insurance"	Ministry of Environmental Protection, Ministry of Economics, Ministry of Finance, and Russian Federation Committee on Insurance Oversight	1993
1.20	Preparation of a draft law "On Delineation of the Authority To Possess, Manage, and Use Natural Resources"	Ministry of Environmental Protection, Ministry of Economics, Ministry of Justice, and State Property Committee, in conjunction with affected ministries and agencies	1993
2. Protection of the Atmosphere			
2.1	Additional editing of the draft state program entitled "Production of Ozone-Safe Coolants and Assurance of Compliance With the Russian Federation's International Obligations To Preserve the Ozone Layer"	Ministry of Environmental Protection, Russian Federal Hydrometeorology Service Interagency Commission on Protection of the Ozone Layer, Ministry of Economics, and Ministry of Justice	1993-94
2.2.	Preparation of proposals to the Government of the Russian Federation regarding ratification of the UN Framework Convention on Climate Change	Russian Federal Hydrometeorology Service, Ministry of Environmental Protection, and other affected ministries and agencies	1993
2.3	Preparation of proposals regarding a mechanism for interagency coordination of efforts to ensure compliance with Russia's obligations under the Convention on Climate Change	Ministry of Environmental Protection	1993
2.4	Development of a draft state program entitled "Elimination of Industrial Emissions From the Atmosphere ('Clean Air for Russia')," with consideration for compliance with Russia's obligations with regard to reduction of pollutant emissions according to the terms of the Convention on Cross-Border Air Pollution in Europe	Ministry of Environmental Protection, Ministry of Economics, Ministry of Finance, and other affected ministries and agencies	1993-94
3. Freshwater Quality Issues			
3.1	Development of a draft state program entitled "Efficient Use of Water Resources and Restoration of Water Quality ('Clean Water for Russia')"	Ministry of Environmental Protection, Ministry of Economics, Ministry of Justice, and other affected ministries and agencies	1993
3.2	Development and initial implementation of a program entitled "Protection and Efficient Use of Natural Resources in the Lake Baykal Watershed"	Ministry of Environmental Protection, Ministry of Economics, Ministry of Finance, and other affected ministries and agencies	[not indicated]
4. Protection of Oceans, Seas, and Coastal Regions, and Use of Their Living Resources			
4.1	Preparation for ratification of the Convention on Protection of the Black Sea, participation in the preparation of a multilateral agreement to protect the environment in the Caspian Sea region	MFA, Ministry of Environmental Protection	1993
4.2	Preparation of recommendations concerning improvement in the system of state management of marine environmental protection and living marine resources in the Far Eastern and Northern regions and in the Baltic Sea, Sea of Azov-Black Sea, and Caspian Sea watersheds	Ministry of Environmental Protection, Russian Federal Committee on the Fishing Industry, Ministry of Security, Russian Federal Hydrometeorology Service	1993
4.3	Development of a draft state program entitled "Russia's Participation in Improvement of the Environmental Situation in Sea Basins and the Arctic"	Ministry of Environmental Protection, Russian Federal Committee for Water Resources, Russian Federal Hydrometeorology Service, Ministry of Economics, and other affected ministries and agencies	1993

Number	Nature of Measure	Responsible Ministries and Agencies	Year Scheduled
5. Protection and Efficient Use of Soils and Land Resources			
5.1	Implementation of the state program entitled "Improved Soil Fertility in Russia"	Ministry of Agriculture, Committee on Land Resources and Land Management, Ministry of Environmental Protection, Ministry of Economics, Ministry of Finance, and other affected ministries and agencies	beginning in 1993
6. Efforts To Prevent Deforestation			
6.1	Consideration of and acquisition of funding for the state programs entitled "Reforestation in Russia" and "Protection of Forests Against Fire in 1993-97"	Ministry of Economics, Ministry of Justice, Committee on Forest Resources and Forest Management, Ministry of Environmental Protection, and other affected ministries and agencies	beginning in 1993
6.2	Initial implementation of the state program "Reforestation in Russia"	Ministry of Environmental Protection and other affected ministries and agencies	beginning in 1993
6.3	Implementation of the state program "Protection of Forests Against Fire in 1993-97"	Committee on Forest Resources and Forest Management, Ministry of Internal Affairs, Committee on the Timber Industry, Ministry of Agricultural Industry, and other affected ministries and agencies	1993-97
6.4	More exact classification of forests into protection groups and categories, with consideration for their larger environmental role and efforts to prevent deforestation	Committee on Forest Resources and Forest Management, Ministry of Environmental Protection, and other affected ministries and agencies	1993
6.5	Implementation of measures to regulate the system of forest use in order to ensure complete reforestation in clearcut areas and efficient use of forest resources	Committee on Forest Resources and Forest Management, Committee on the Timber Industry, Ministry of Internal Affairs, Ministry of Agricultural Industry, Ministry of Defense, and other affected ministries and agencies	1993-94
7. Preservation of Biological Diversity and Use of Biotechnology			
7.1	Preparation for ratification of the framework Convention on Biological Diversity, which was signed on behalf of the Russian MFA and the Government of the Russian Federation, and its implementation in Russia	Ministry of Environmental Protection	1993-94
7.2	Implementation of measures to develop a network of stations for comprehensive background environmental monitoring in all of Russia's biosphere preserves	Russian Federal Hydrometeorology Service, in conjunction with the Ministry of Environmental Protection	1993-95
7.3	Development of a package of national legislation to preserve biological diversity and ensure sustainable use of biological natural resources	Ministry of Environmental Protection, Ministry of Economics, Russian Academy of Sciences, and other affected ministries and agencies	1993-94
7.4	Development of a package of national legislation to regulate access to genetic resources and biotechnology	Ministry of Environmental Protection, Ministry of Economics, Russian Academy of Sciences, and other affected ministries and agencies	1993
7.5	Establishment of a data bank on biological diversity in Russia and compilation of state cadastral maps of animals, plants, and microorganisms	Ministry of Environmental Protection, Ministry of Economics, Russian Academy of Sciences, and other affected ministries and agencies	1994
7.6	Implementation of measures to increase the size of existing and create new specially protected natural areas that are of significance with regard to preservation of biological diversity	Ministry of Environmental Protection, Ministry of Economics, Russian Academy of Sciences, and other affected ministries and agencies	1993
7.7	Implementation of measures to establish a system of centers for the preservation of biological diversity outside of nature (i.e., under artificial conditions)	Ministry of Environmental Protection, Ministry of Economics, Russian Academy of Sciences, and other affected ministries and agencies	1994

Number	Nature of Measure	Responsible Ministries and Agencies	Year Scheduled
7.8	Development and initial implementation of a state environmental program entitled "Protection and Restoration of the Species Diversity of Flora and Fauna and Preservation of the Biota's Genetic Stock"	Ministry of Environmental Protection, Ministry of Science and Technology Policy, Ministry of Agricultural Production, and other affected ministries and agencies	1993-94
8. Environmental Problems Pertaining to the Defense Industry, the Armed Forces, and Environmental Radiation Safety			
8.1	Within the framework of state programs for the elimination, utilization, or destruction of weapons and military equipment, nuclear and chemical weapons, and conventional weapons—provision for environmental impact assessment	Key ministries, Ministry of Defense, Ministry of Environmental Protection	1993-97
8.2	Implementation of the Conversion and Ecology program	Ministry of Environmental Protection, Committee on the Defense Industry	1993-95
8.3	Development of a normative legal base on environmental safety issues involved in the use of near-Earth space	Ministry of Environmental Protection, Ministry of Defense, Russian Federal Hydrometeorology Service, and other affected ministries and agencies	1993-94
8.4	Development and implementation of a directed, comprehensive program entitled "Armed Forces Environmental Safety," to include: creation of a structure of environmental agencies and units to ensure environmental safety in the Armed Forces; development and implementation of an automated environmental monitoring system for the Armed Forces as a subsystem of the State Environmental Monitoring System; development and implementation of a series of measures to solve priority problems in connection with ensuring environmental safety in the Armed Forces	Ministry of Defense, Ministry of Environmental Protection, Ministry of Economics, Ministry of Finance, and other affected ministries and agencies	1993-97
8.5	Inventory of places and facilities for the mining, transportation, processing, use, collection, storage, and disposal of sources of ionizing radiation and radioactive substances	Ministry of Atomic Energy, Ministry of Environmental Protection, and other affected ministries and agencies	1993
8.6	On the basis of the aforementioned inventory, creation of:		
	—a state register of radioactive waste disposal sites	Ministry of Environmental Protection	1994
	—a state register of sources of ionizing radiation and radioactive substances	State Federal Oversight of Nuclear and Radiation Safety	1994
	—a state register of organizations and enterprises whose operations result in the creation of radioactive waste and which are responsible for emissions and discharges into the environment	Ministry of Atomic Energy, Ministry of Environmental Protection	1994-95
8.7	Establishment, oversight, and further development of the Unified State Automated System for Monitoring of the Radiation Situation (EGASKRO), which should integrate corresponding systems that now exist under ministries and agencies	Ministry of Environmental Protection, Russian Federal Hydrometeorology Service, Ministry of Atomic Energy, and other affected ministries and agencies	1993-95
8.8	Development and implementation of a series of measures to ensure safety in the nuclear fuel cycle within the framework of the system of environmental safety in Russia now being established	Ministry of Atomic Energy, Ministry of Environmental Protection, and other affected ministries and agencies	1993-95
8.9	Provision of an assessment of the environmental radiation danger from radioactive wastes dumped in Arctic seas; as necessary, decontamination efforts	Ministry of Atomic Energy, Ministry of Environmental Protection, Russian Federal Hydrometeorology Service	1993-97

Number	Nature of Measure	Responsible Ministries and Agencies	Year Scheduled
8.10	Introduction of a system of accreditation for radiation monitoring laboratories	Russian Federation Committee on Standardization, Metrology, and Certification, Russian Federal Oversight of Nuclear and Radiation Safety, Ministry of Atomic Energy, Ministry of Health, Ministry of Environmental Protection, and other affected ministries and agencies	1993-95
9. Education and Public Information			
9.1	Preparation and submission of proposals concerning formation of a Coordinating Council on Environmental Training and Education	Russian Committee on Higher Education, Ministry of Science and Technology Policy, Ministry of Environmental Protection, and other affected ministries and agencies	1993
9.2	Compilation of a list of priority measures designed to implement a strategy of stronger environmental emphasis in all types of training and education	Russian Committee on Higher Education, Russian Ministry of Science and Technology, and Ministry of Environmental Protection, in conjunction with the Russian Academy of Education and other affected ministries and agencies	1993
9.3	Measures to include in a federal support and development program funding for mass information and in a federal directed book publishing program for Russia in 1993 periodicals and literature selected on a competitive basis to foster public environmental education	Ministry of Press, Ministry of Environmental Protection	1993
9.4	Television and radio coverage of environmental protection issues, along with participation in the organization and conducting of contests and festival programming on the same subject	Ministry of Press, Ministry of Environmental Protection	ongoing
10	Russian Federation State Environmental Program	Ministry of Environmental Protection, Ministry of Economics, Ministry of Finance, and other affected ministries and agencies	1993-94

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10 MAR 1994